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Eric J. Holcomb
Governor

Brian C. Rockensuess
Commissioner

To:	Interested Parties
Date:	June 18, 2024
From:	Jenny Acker, Chief Permits Branch Office of Air Quality
Source Name:	StarPlus Energy LLC
Permit Level:	Title V Significant Permit Modification
Permit Number:	067-47628-00093
Source Location:	2724 N. 50 E. Kokomo, IN 46901
Type of Action Taken:	Revisions to permit requirements

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the matter referenced above.

The final decision is available on the IDEM website at: http://www.in.gov/apps/idem/caats/
To view the document, choose Search Option **by Permit Number**, then enter permit 47628. This search will also provide the application received date, **draft permit** public notice start and end date, **proposed permit** EPA review period start and end date, and **final** permit issuance date.

The final decision is also available via IDEM's Virtual File Cabinet (VFC). Please go to: https://www.in.gov/idem and enter VFC in the search box. You will then have the option to search for permit documents using a variety of criteria.

(continues on next page)

If you would like to request a paper copy of the permit document, please contact IDEM's Office of Records Management:

IDEM - Office of Records Management
Indiana Government Center North, Room 1207
100 North Senate Avenue
Indianapolis, IN 46204
Phone: (317) 232-8667
Fax: (317) 233-6647
Email: IDEMFILEROOM@idem.in.gov

Pursuant to IC 13-17-3-4 and 326 IAC 2, this permit modification is effective immediately, unless a petition for stay of effectiveness is filed and granted, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3-7 and IC 13-15-7-3 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room N103, Indianapolis, IN 46204, **within eighteen (18) days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for considerations at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

Pursuant to 326 IAC 2-7-18(d), any person may petition the U.S. EPA to object to the issuance of an initial Title V operating permit, permit renewal, or permit modification within sixty (60) days of the end of the forty-five (45) day EPA review period. Such an objection must be based only on issues that were raised with reasonable specificity during the public comment period, unless the petitioner demonstrates that it was impractible to raise such issues, or if the grounds for such objection arose after the comment period.

The EPA requests that you file Title V petitions electronically through the Central Data Exchange. To do so, please go to: https://cdx.epa.gov/ .

If you tried but you are unable to use the Central Data Exchange to file your petition, the EPA requests that you send your petition and associated attachments via email to: titleVpetitions@epa.gov.

If you have made every effort to electronically submit your petition but are simply unable to successfully do so, please submit a hardcopy of your petition to the following address:

US EPA
Office of Air Quality Planning and Standards
Air Quality Policy Division
Operating Permits Group Leader
109 T.W. Alexander Dr. (C-504-01)
Research Triangle Park, NC 27711

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
Decision-Title V-Mod 1/9/17

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Governor
Brian C. Rockensuess
Commissioner

June 18, 2024

Mr. Alan Kirchoff
StarPlus Energy LLC
2724 N. 50 E.
Kokomo, IN 46901

Re: 067-47628-00093
Significant Permit Modification

Dear Mr. Kirchoff:

StarPlus Energy LLC was issued Part 70 Operating Permit No. T067-45648-00093 on September 12, 2023, for a stationary Lithium Ion battery manufacturing operation located at 2724 N. 50 E., Kokomo, IN 46901. An application requesting changes to this permit was received on March 4, 2024. Pursuant to the provisions of 326 IAC 2-7-12, a Significant Permit Modification to this permit is hereby approved as described in the attached Technical Support Document.

Please find attached the entire Part 70 Operating Permit as modified, including the following new attachment(s):

Attachment E: 40 CFR 60, Subpart Dc, NSPS for Small Industrial-Commercial-Institutional Steam Generating Units *new*

The permit references the below listed attachment(s). Since these attachments have been provided in previously issued approvals for this source, IDEM OAQ has not included a copy of these attachments with this modification:

Attachment A: 40 CFR 60, Subpart IIII, NSPS for Stationary Compression Ignition Internal Combustion Engines
Attachment B: 40 CFR 60, Subpart JJJJ, NSPS for Stationary Spark Ignition Internal Combustion Engines
Attachment C: 40 CFR 63. Subpart ZZZZ, NESHAP for Stationary Reciprocating Internal Combustion Engines
Attachment D: 40 CFR 63, Subpart CCCCCCC, NESHAP for Manufacture of Paint and Allied Products

Previously issued approvals for this source containing these attachments are available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/.

Previously issued approvals for this source are also available via IDEM's Virtual File Cabinet (VFC). To access VFC, please go to: https://www.in.gov/idem/ and enter VFC in the search box. You will then have the option to search for permit documents using a variety of criteria.

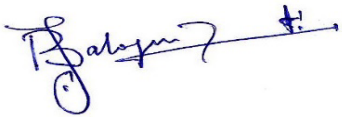
Federal rules under Title 40 of United States Code of Federal Regulations may also be found on the U.S. Government Printing Office's Electronic Code of Federal Regulations (eCFR) website, located on the Internet at: http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab_02.tpl.

A copy of the permit is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/. A copy of the application and permit is also available via IDEM's Virtual File Cabinet (VFC). To access VFC, please go to: https://www.in.gov/idem/ and enter VFC in the search box. You will then have the option to search for permit documents using a variety of criteria. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Air Permits page on the Internet at: https://www.in.gov/idem/airpermit/public-participation/; and the Citizens' Guide to IDEM on the Internet at: https://www.in.gov/idem/resources/citizens-guide-to-idem/.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5.

If you have any questions regarding this matter, please contact Sidhant Paul, Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251, or by telephone at (317) 232-8219 or (800) 451-6027, and ask for Sidhant Paul or (317) 232-8219.

Sincerely,



Brian Williams, Section Chief
Permits Branch
Office of Air Quality

Attachments: Modified Permit and Technical Support Document
cc: File - Howard County
Howard County Health Department
U.S. EPA, Region 5
Compliance and Enforcement Branch

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Part 70 Operating Permit
OFFICE OF AIR QUALITY

StarPlus Energy LLC
2724 N. 50 E.
Kokomo, Indiana 46901

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Noncompliance with any provision of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T067-45648-00093 Master Agency Interest ID.: 130741	
Issued by: Original signed by: Brian Williams, Section Chief Permits Branch, Office of Air Quality	Issuance Date: September 12, 2023 Expiration Date: September 12, 2028

Significant Permit Modification.: T067-47628-00093	
Issued by: Brian Williams, Section Chief Permits Branch Office of Air Quality	Issuance Date: June 18, 2024 Expiration Date: September 12, 2028

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Attachment B: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines [40 CFR 60, Subpart JJJJ]
Attachment C: National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines [40 CFR 63, Subpart ZZZZ]
Attachment D: National Emission Standards for Hazardous Air Pollutants for Manufacture of Paint and Allied Products NESHAP [40 CFR 63, Subpart CCCCCCC]
Attachment E: Standards of Performance for Small Industrial-Commerical-Institutional Steam Generating Units [40 CFR 60, Subpart Dc]

SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.4 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(14)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary Lithium Ion battery manufacturing operation.

Source Address:	2724 N. 50 E., Kokomo, Indiana 46901
General Source Phone Number:	(248) 978 4225
SIC Code:	3691 (Storage Batteries), 2869 (Industrial Organic Chemicals, Not Elsewhere Classified)
County Location:	Howard
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories (Battery Manufacturing Operation) Nested Source (Chemical Process Plant) is 1 of 28 Source Categories, within a non-listed source Nested Minor Source, under PSD and Emission Offset Nested Minor source, under Section 112 of the Clean Air Act

A.2 Part 70 Source Definition [326 IAC 2-7-1(22)]

This source consists of two (2) plants:

(a) JWA CO., LTD.'s plant located at 1679 East Sparks Road, Kokomo, IN 46901 (067-00096) making chemicals, and

(b) StarPlus Energy LLC's plant located at 2724 N. 50 E., Kokomo, Indiana 46901 (Source ID 067-00093), manufacturing storage batteries.

IDEM has determined that JWA CO., LTD. and StarPlus Energy LLC are under the common control of Samsung SDI America and Stellantis. These two plants are considered one source because they are located on adjacent properties, are under common ownership, and JWA CO., LTD. is a support facility for StarPlus Energy LLC. JWA CO., LTD.'s operations are included as part of StarPlus Energy LLC's Part 70 operating source. Therefore, the term "source" in the Part 70 documents refers to both JWA CO., LTD. and StarPlus Energy LLC as one source.

Separate Part 70 renewal permits have been issued to StarPlus Energy LLC and JWA CO., LTD, solely for administrative purposes.

(a) StarPlus Energy LLC -- Part 70 Operating Permit 067-45648-00093

(b) JWA CO., LTD. -- Part 70 Administrative Permit 067-47041-0009

This determination was initially made under Part 70 Administrative Operating Permit No. 067-47041-00096, issued on February 20, 2024.

A.3 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]

This stationary source consists of the following emission units and pollution control devices:

Plant 1:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 1-4	1,057	105	918,079	2023*	Bag filter CBF15	01-PEF-03-05
Four (4) HD Mixer Tanks	HD 1-4	634			2023*	Bag filter CBF2	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 1-2	792			2023*	Bag filter CBF8	01-PEF-03-05
One (1) Binder Booth	Binder booth 1	528			2023*	Bag filter CBF16	01-PEF-03-05
Four (4) Cathode Silos	Cathode silo 1-4	1,057			2023*	Bag filter CBF7	01-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 1-4	528			2023*	Bag filter CBF7	01-PEF-03-05
Two (2) Binder Mixers tanks	Binder Mixer 1-2	528			2023*	Bag filter CBF1	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 1-4	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Emf Buffer Tank	EMFBT 1-4	528			2023*		
Seven (7) Storage Tanks	ST 1-7	528			2023*		
One (1) Coater Buffer Tank	CBT 1	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 5-7	1057	105	918,079	2023*	Bag filter CBF17	01-PEF-03-05
Three (3) HD Mixer Tanks	HD 5-7	634			2023*	Bag filter CBF3	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 3-4	792			2023*	Bag filter CBF10	01-PEF-03-05
One (1) Binder Booth	Binder Booth 2	528			2023*	Bag filter CBF18	01-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 5-7	1057			2023*	Bag filter CBF9	01-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 5-7	528			2023*	Bag filter CBF9	01-PEF-03-05
Two (2) Binder Mixers	Binder Mixer 3-4	528			2023*	Bag filter CBF1	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 5-8	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Three (3) Emf Buffer Tank	EMFBT 5-7	528			2023*		
Seven (7) Storage Tanks	ST 8-14	528			2023*		
One (1) Coater Buffer Tank	CBT 2	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 8-11	1057	105	918,079	2023*	Bag filter CBF19	01-PEF-03-05
Four (4) HD Mixer Tanks	HD 8-11	634			2023*	Bag filter CBF5	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Two (2) Binder Silos	Binder Silo 5-6	792			2023*	Bag filter CBF12	01-PEF-03-05
One (1) Binder Booth	Binder booth 3	528			2023*	Bag filter CBF20	01-PEF-03-05
Four (4) Cathode Silos	Cathode silo 8-11	1057			2023*	Bag filter CBF11	01-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 8-11	528			2023*	Bag filter CBF11	01-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 5-6	528			2023*	Bag filter CBF4	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 9-12	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Emf Buffer Tank	EMFBT 8-11	528			2023*		
Seven (7) Storage Tanks	ST 15-21	528			2023*		
One (1) Coater Buffer Tank	CBT 3	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 12-14	1057	105	918,079	2023*	Bag filter CBF21	01-PEF-03-05
Three (3) HD Mixer Tanks	HD 12-14	634			2023*	Bag filter CBF6	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 7-8	792			2023*	Bag filter CBF14	01-PEF-03-05
One (1) Binder Booth	Binder Booth 4	528			2023*	Bag filter CBF22	01-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 12-14	1057			2023*	Bag filter CBF13	01-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 12-14	528			2023*	Bag filter CBF13	01-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 7-8	528			2023*	Bag filter CBF4	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Binder Storage Tanks	BST 13-16	528			2023*		

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Emf Buffer Tank	EMFBT 12-14	528			2023*		
Seven (7) Storage Tanks	ST 22-28	528			2023*		
One (1) Coater Buffer Tank	CBT 4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as NMPST 1 and NMPST 2; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 3 and NMPST 4.

Under 40 CFR 63, Subpart CCCCCCC, the NMP Storage Tanks associated with the cathode raw material handling and mixing line is considered an affected source.

(f) One (1) Anode raw material handling and mixing line, identified as ALine1, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 1-3	608	125	1,091,590	2023*	Bag filter ABF2	01-PEF-01-02
Three (3) PD Mixers	PDM 4-6	608			2023*	Bag filter ABF3	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 1-3	528			2023*	Bag filter ABF1	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 1	792			2023*	Bag filter ABF20	01-PEF-01-02
One (1) CMC Booth	CMC Booth 1	792			2023*	Bag filter ABF20	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 1-2	792			2023*	Bag filter ABF12	01-PEF-01-02
One (1) CMC Silo	CMC Silo 1	792			2023*	Bag filter ABF 12	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 1-4	1057			2023*	Bag filter ABF19	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 1-4	1057			2023*	Bag filter ABF11	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 1-6	528			2023*	Bag filter ABF11	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 1-6	528			2023*	NA	Indoor

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
One (1) Electric Hot water Tank	HWT 1	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 1-12	528			2023*		
Two (2) Coater Buffer Tanks	CBT 1-2	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(g) One (1) Anode raw material handling and mixing line, identified as ALine2, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 7-9	608	125	1,091,590	2023*	Bag filter ABF4	01-PEF-01-02
Three (3) PD Mixers	PDM 10-12	608			2023*	Bag filter ABF5	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 4-6	528			2023*	Bag filter ABF1	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 2	792			2023*	Bag filter ABF22	01-PEF-01-02
One (1) CMC Booth	CMC Booth 2	792			2023*	Bag filter ABF22	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 3-4	792			2023*	Bag filter ABF14	01-PEF-01-02
One (1) CMC Silo	CMC Silo 2	792			2023*	Bag filter ABF 14	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 5-8	1057			2023*	Bag filter ABF21	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 5-8	1057			2023*	Bag filter ABF13	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 7-12	528			2023*	Bag filter ABF13	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 7-12	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 2	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 13-24	528			2023*		
Two (2) Coater Buffer Tanks	CBT 3-4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(h) One (1) Anode raw material handling and mixing line, identified as ALine 3, approved in 2023 for

construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 13-15	608	125	1,091,590	2023*	Bag filter ABF7	01-PEF-01-02
Three (3) PD Mixers	PDM 16-18	608			2023*	Bag filter ABF8	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 7-9	528			2023*	Bag filter ABF6	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 3	792			2023*	Bag filter ABF24	01-PEF-01-02
One (1) CMC Booth	CMC Booth 3	792			2023*	Bag filter ABF24	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 5-6	792			2023*	Bag filter ABF16	01-PEF-01-02
One (1) CMC Silo	CMC Silo 3	792			2023*	Bag filter ABF16	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 9-12	1057			2023*	Bag filter ABF23	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 9-12	1057			2023*	Bag filter ABF15	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 13-18	528			2023*	Bag filter ABF15	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 13-18	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 3	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 25-36	528			2023*		
Two (2) Coater Buffer Tanks	CBT 5-6	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(i) One (1) Anode raw material handling and mixing line, identified as ALine 4, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 19-21	608	125	1,091,590	2023*	Bag filter ABF9	01-PEF-01-02
Three (3) PD Mixers	PDM 22-24	608			2023*	Bag filter ABF10	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 10-12	528			2023*	Bag filter ABF6	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 4	608			2023*	Bag filter ABF26	01-PEF-01-02

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
One (1) CMC Booth	CMC Booth 4	608			2023*	Bag filter ABF26	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 7-8	528			2023*	Bag filter ABF18	01-PEF-01-02
One (1) CMC Silo	CMC Silo 4	608			2023*	Bag filter ABF 18	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 13-16	608			2023*	Bag filter ABF25	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 13-16	528			2023*	Bag filter ABF17	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 19-24	528			2023*	Bag filter ABF17	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 19-24	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 4	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 37-48	528			2023*		
Two (2) Coater Buffer Tanks	CBT 7-8	528			2023*		

* Year approved for construction
** Per individual unit
*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(j) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat1, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-01, exhausting to stack SR-01.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat2, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-02, exhausting to stack SR-02.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat3, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-03, exhausting to stack SR-03.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat4, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-04, exhausting to stack SR-04.

(k) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat1, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat2, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat3, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat4, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(l) Anode slitting process, consisting of the following:

(1) One (1) Anode slitter, identified as AS1, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF1-ASBF4), and exhausting to stack (01-DCEF-1).

(2) One (1) Anode slitter, identified as AS2, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF5-ASBF8), and exhausting to stack (01-DCEF-1).

(3) One (1) Anode slitter, identified as AS3, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF9-ASBF12), and exhausting to stack (01-DCEF-1).

(4) One (1) Anode slitter, identified as AS4, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF13-ASBF16), and exhausting to stack (01-DCEF-1).

(m) Cathode slitting process, consisting of the following:

(1) One (1) Cathode slitter, identified as CS1, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF1-CSBF4), and exhausting to stack (01-DCEF-2).

(2) One (1) Cathode slitter, identified as CS2, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF5-CSBF8), and exhausting to stack (01-DCEF-2).

(3) One (1) Cathode slitter, identified as CS3, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF9-CSBF12), and exhausting to stack (01-DCEF-2).

(4) One (1) Cathode slitter, identified as CS4, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF13-

CSBF16), and exhausting to stack (01-DCEF-2).

(n) One (1) Assembly process, consisting of the following:

(1) Four (4) Stacking Lines, consisting of the following:

Line 1

(A) Thirty-two (32) stackers, identified as S1_1 to S1_32, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S1_BF1 to S1_BF32) respectively, exhausting to stack (01-DCEF-3).

Line 2

(B) Thirty-two (32) stackers, identified as S2_1 to S2_32, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S2_BF1 to S2_BF32) respectively, exhausting to stack (01-DCEF-4).

Line 3

(C) Twenty-five (25) stackers, identified as S3_1 to S3_25, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S3_BF1 to S3_BF25) respectively, exhausting to stack (01-DCEF-5).

Line 4

(D) Twenty-five (25) stackers, identified as S4_1 to S4_25, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S4_BF1 to S4_BF25) respectively, exhausting to stack (01-DCEF-6).

(2) Four (4) LPW lines, consisting of the following:

Line 1

(A) Two (2) LPW welding, identified as LPW1-1 to LPW1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF1 to LPWBF2) respectively, exhausting to stack (01-DCEF-7).

Line 2

(B) Two (2) LPW welding, identified as LPW2-1 to LPW2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF3 to LPWBF4) respectively, exhausting to stack (01-DCEF-7).

Line 3

(C) Two (2) LPW welding, identified as LPW3-1 to LPW3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF5 to LPWBF6) respectively, exhausting to stack (01-DCEF-7).

Line 4

(D) Two (2) LPW welding, identified as LPW4-1 to LPW4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF7 to LPWBF8) respectively, exhausting to stack (01-DCEF-7).

(3) Four (4) CanCap Welding lines, consisting of the following:

Line 1

(A) Two (2) CanCap welding, identified as CanCap1-1 to CANCAP1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF1 to CANCAPBF2) respectively, exhausting to stack (01-DCEF-8).

Line 2

(B) Two (2) CanCap welding, identified as CANCAP2-1 to CANCAP2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF3 to CANCAPBF4) respectively, exhausting to stack (01-DCEF-8).

Line 3

(C) Two (2) CanCap welding, identified as CANCAP3-1 to CANCAP3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF5 to CANCAPBF6) respectively, exhausting to stack (01-DCEF-8).

Line 4

(D) Two (2) CanCap welding, identified as CANCAP4-1 to CANCAP4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF7 to CANCAPBF8) respectively, exhausting to stack (01-DCEF-8).

(4) Four (4) electrolyte filling processes, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, approved for construction in 2023 and approved for modification in 2024, using Activated Carbon Towers (CAT-02a, CAT-02b, CAT-02c, CAT-02d, & CAT-02e Standby) for VOC/HAP control for all four lines, exhausting to stack (S-2a, S-2b, S-2c, S-2d, and S-2e Standby), consisting of the following:

Line 1

(A) Eight (8) electrolyte filling machines, identified as EFM1-EFM8, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 2

(B) Eight (8) electrolyte filling machines, identified as EFM9-EFM16, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 3

(C) Eight (8) electrolyte filling machines identified as EFM17-EFM24, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 4

(D) Eight (8) electrolyte filling machines, identified as EFM25-EFM32, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

(5) One (1) General assembly operation, identified as GAO1, approved for construction in 2024, consisting of adhesive and gap filling operations.

(6) One (1) Lime duct injection operation, identified as LDI1, approved for construction in 2024, with a maximum capacity of 6 tons a year of lime.

(o) One (1) formation process, identified as Formation, approved in 2023 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(1) One (1) taping process, with a combined maximum process capacity of 3,588 cells per hour, total, consisting of the following:

(A) One (1) taping machine, identified as TM-1, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF1-TMBF4), exhausting through general exhaust stack 02-EF-301-302.

(B) One (1) taping machine, identified as TM-2, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF5-TMBF8), exhausting through general exhaust stack 02-EF-301-302.

(C) One (1) taping machine, identified as TM-3, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF9-TMBF12), exhausting through general exhaust stack 02-EF-301-302.

(D) One (1) taping machine, identified as TM-4, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF13-TMBF16), exhausting through general exhaust stack 02-EF-301-302.

(E) One (1) taping machine, identified as TM-5, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF17-TMBF20), exhausting through general exhaust stack 02-EF-301-302.

(F) One (1) taping machine, identified as TM-6, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF21-TMBF24), exhausting through general exhaust stack 02-EF-301-302.

(G) One (1) taping machine, identified as TM-7, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF25-TMBF28), exhausting through general exhaust stack 02-EF-301-302.

(H) One (1) taping machine, identified as TM-8, approved in 2023 for construction and approved in 2024 for modification, and controlled by bag filters (TMBF29-TMBF32), exhausting through general exhaust stack 02-EF-301-302.

(2) Four (4) SealPin Welding lines, consisting of the following:

Line 1

(A) Two (2) seal pin welding, identified as SPW1-1 to SPW1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (SPWBF1), exhausting through general exhaust stack 02-301-302.

Line 2

(B) Two (2) seal pin welding, identified as SPW2-1 to SPW2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF2) respectively, exhausting through general exhaust stack 02-EF-301-302.

Line 3

(C) Two (2) seal pin welding, identified as SPW3-1 to SPW3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF3) respectively, exhausting through general exhaust stack 02-EF-301-302.

Line 4

(D) Two (2) seal pin welding, identified as SPW4-1 to SPW4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF4) respectively, exhausting to through general exhaust stack 02-EF-301-302.

(3) Four (4) HVC Front Side Moving Device, identified as HVC1-HVC4, approved in 2023 for construction and approved in 2024 for modification, with a combined maximum capacity of 3,588 cells/hr, and Activated Carbon Tower (CAT-03a, CAT-03b & CAT-03c /Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(p) One (1) module process, identified as Module, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following

Line 1

(1) One (1) frame side welding, identified as FSW1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897cells/hr, total, and controlled by a bag filter (MBF1), exhausting through general exhaust stack 02-EF-301-302.

(2) One (1) busbar welding, identified as BW1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF2), exhausting through general exhaust stack 02-EF-301-302.

(3) One (1) side dispenser, identified as SD1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA1-PSA2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(6) Two (2) curing stations, identified as CUS1-CUS2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(7) One (1) Frame end welding, identified as FEW1, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF9), exhausting through general exhaust stack 02-EF-301-302.

Line 2

(8) One (1) frame side welding, identified as FSW2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF3), exhausting through general exhaust stack 02-EF-301-

302.

(9) One (1) busbar welding, identified as BW2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF4), exhausting through general exhaust stack 02-EF-301-302.

(10) One (1) side dispenser, identified as SD2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(11) One (1) HBB dispenser, identified as HBB2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(12) Two (2) PSA dispensers, identified as PSA3-PSA4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(13) Two (2) curing stations, identified as CUS3-CUS4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(14) One (1) Frame end welding, identified as FEW2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF10), exhausting through general exhaust stack 02-EF-301-302.

Line 3

(15) One (1) frame side welding, identified as FSW3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF5), exhausting through general exhaust stack 02-EF-301-302.

(16) One (1) busbar welding, identified as BW3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF6), exhausting through general exhaust stack 02-EF-301-302.

(17) One (1) side dispenser, identified as SD3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(18) One (1) HBB dispenser, identified as HBB3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(19) Two (2) PSA dispensers, identified as PSA5-PSA6, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(20) Two (2) curing station, identified as CUS5-CUS6, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(21) One (1) Frame end welding, identified as FEW3, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF11),

exhausting through general exhaust stack 02-EF-301-302.

Line 4

(22) One (1) frame side welding, identified as FSW4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF7), exhausting through general exhaust stack 02-EF-301-302.

(23) One (1) busbar welding, identified as BW4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF8), exhausting through general exhaust stack 02-EF-301-302.

(24) One (1) side dispenser, identified as SD4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(25) One (1) HBB dispenser, identified as HBB4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(26) Two (2) PSA dispensers, identified as PSA7-PSA8, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(27) Two (2) curing station, identified as CUS7-CUS8, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(28) One (1) Frame end welding, identified as FEW4, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF12), exhausting through general exhaust stack 02-EF-301-302.

Plant 2:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 5, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 15-18	1,057	105	918,079	2024*	Bag filter CBF42	02-PEF-03-05
Four (4) HD Mixer Tanks	HD 15-18	634			2024*	Bag filter CBF29	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 9-10	792			2024*	Bag filter CBF35	02-PEF-03-05

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
One (1) Binder Booth	Binder booth 5	528			2024*	Bag filter CBF40	02-PEF-03-05
Four (4) Cathode Silos	Cathode silo 15-18	1,057			2024*	Bag filter CBF34	02-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 15-18	528			2024*	Bag filter CBF34	02-PEF-03-05
Two (2) Binder Mixers tanks	Binder Mixer 9-10	528			2024*	Bag filter CBF28	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 15-18	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Emf Buffer Tank	EMFBT 15-18	528			2024*		
Seven (7) Storage Tanks	ST 29-35	528			2024*		
One (1) Coater Buffer Tank	CBT 5	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 6, approved in 2024 for construction, and consisting of the following

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 19-21	1057	105	918,079	2024*	Bag filter CBF44	02-PEF-03-05
Three (3) HD Mixer Tanks	HD 19-21	634			2024*	Bag filter CBF30	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 11-12	792			2024*	Bag filter CBF37	02-PEF-03-05
One (1) Binder Booth	Binder Booth 6	528			2024*	Bag filter CBF45	02-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 19-21	1057			2024*	Bag filter CBF36	02-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 19-21	528			2024*	Bag filter CBF36	02-PEF-03-05

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Two (2) Binder Mixers	Binder Mixer 11-12	528			2024*	Bag filter CBF28	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 21-24	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Three (3) Emf Buffer Tank	EMFBT 19-21	528			2024*		
Seven (7) Storage Tanks	ST 36-42	528			2024*		
One (1) Coater Buffer Tank	CBT 6	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 7, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 22-25	1057	105	918,079	2024*	Bag filter CBF46	02-PEF-03-05
Four (4) HD Mixer Tanks	HD 22-25	634			2024*	Bag filter CBF32	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 13-14	792			2024*	Bag filter CBF39	02-PEF-03-05
One (1) Binder Booth	Binder booth 7	528			2024*	Bag filter CBF47	02-PEF-03-05
Four (4) Cathode Silos	Cathode silo 22-25	1057			2024*	Bag filter CBF38	02-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 22-25	528			2024*	Bag filter CBF38	02-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 13-14	528			2024*	Bag filter CBF31	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 25-28	528			2024*	CAT-09a, CAT-09b and CAT-	S-9a, S-9b, and S-9c Standby

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Emf Buffer Tank	EMFBT 22-25	528			2024*	09c Standby	
Seven (7) Storage Tanks	ST 43-49	528			2024*		
One (1) Coater Buffer Tank	CBT 7	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 8, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 26-28	1057	105	918,079	2024*	Bag filter CBF48	02-PEF-03-05
Three (3) HD Mixer Tanks	HD 26-28	634			2024*	Bag filter CBF33	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 15-16	792			2024*	Bag filter CBF41	02-PEF-03-05
One (1) Binder Booth	Binder Booth 8	528			2024*	Bag filter CBF49	02-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 26-28	1057			2024*	Bag filter CBF43	02-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 26-28	528			2024*	Bag filter CBF43	02-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 15-16	528			2024*	Bag filter CBF31	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 29-32	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Three (3) Emf Buffer Tank	EMFBT 26-28	528			2024*		
Seven (7) Storage Tanks	ST 50-56	528			2024*		
One (1) Coater Buffer Tank	CBT 8	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction, using Activated Carbon Towers (CAT-10a, CAT-10b, CAT-10c, CAT-10d, & CAT-10e Standby) for VOC/HAP control, exhausting to stack (S-10a, S-10b, S-10c, S-10d, and 10-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as Tanks NMPST 5 and NMPST 6; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 7 and NMPST 8.

Under 40 CFR 63, Subpart CCCCCCC, the NMP Storage Tanks associated with the cathode raw material handling and mixing line is considered an affected source.

(f) One (1) Anode raw material handling and mixing line, identified as Aline5, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 25-27	608	125	1,091,590	2024*	Bag filter ABF29	02-PEF-01-02
Three (3) PD Mixers	PDM 28-30	608			2024*	Bag filter ABF30	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 13-15	528			2024*	Bag filter ABF28	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 5	792			2024*	Bag filter ABF47	02-PEF-01-02
One (1) CMC Booth	CMC Booth 5	792			2024*	Bag filter ABF47	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 9-10	792			2024*	Bag filter ABF39	02-PEF-01-02
One (1) CMC Silo	CMC Silo 5	792			2024*	Bag filter ABF 39	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 17--20	1057			2024*	Bag filter ABF46	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 17-20	1057			2024*	Bag filter ABF38	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 25-30	528			2024*	Bag filter ABF38	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 25-30	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 5	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 49-60	528			2024*		

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Two (2) Coater Buffer Tanks	CBT 9-10	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(g) One (1) Anode raw material handling and mixing line, identified as Aline6, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 31-33	608	125	1,091,590	2024*	Bag filter ABF31	02-PEF-01-02
Three (3) PD Mixers	PDM 34-36	608			2024*	Bag filter ABF32	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 16-18	528			2024*	Bag filter ABF28	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 6	792			2024*	Bag filter ABF49	02-PEF-01-02
One (1) CMC Booth	CMC Booth 6	792			2024*	Bag filter ABF49	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 11-12	792			2024*	Bag filter ABF41	02-PEF-01-02
One (1) CMC Silo	CMC Silo 6	792			2024*	Bag filter ABF 41	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 21-24	1057			2024*	Bag filter ABF48	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 21-24	1057			2024*	Bag filter ABF40	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 31-36	528			2024*	Bag filter ABF40	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 31-36	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 6	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 61-72	528			2024*		
Two (2) Coater Buffer Tanks	CBT 11-12	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(h) One (1) Anode raw material handling and mixing line, identified as ALine 7, approved in 2024 for

construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 37-39	608	125	1,091,590	2024*	Bag filter ABF34	02-PEF-01-02
Three (3) PD Mixers	PDM 40-42	608			2024*	Bag filter ABF35	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 19-21	528			2024*	Bag filter ABF33	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 7	792			2024*	Bag filter ABF51	02-PEF-01-02
One (1) CMC Booth	CMC Booth 7	792			2024*	Bag filter ABF51	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 13-14	792			2024*	Bag filter ABF43	02-PEF-01-02
One (1) CMC Silo	CMC Silo 7	792			2024*	Bag filter ABF43	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 25-28	1057			2024*	Bag filter ABF50	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 25-28	1057			2024*	Bag filter ABF42	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 37-42	528			2024*	Bag filter ABF42	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 37-42	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 7	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 73-84	528			2024*		
Two (2) Coater Buffer Tanks	CBT 13-14	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(l) One (1) Anode raw material handling and mixing line, identified as ALine 8, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 43-45	608	125	1,091,590	2024*	Bag filter ABF36	02-PEF-01-02
Three (3) PD Mixers	PDM 46-48	608			2024*	Bag filter ABF37	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 22-24	528			2024*	Bag filter ABF33	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 8	608			2024*	Bag filter ABF53	02-PEF-01-02

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
One (1) CMC Booth	CMC Booth 8	608			2024*	Bag filter ABF53	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 15-16	528			2024*	Bag filter ABF45	02-PEF-01-02
One (1) CMC Silo	CMC Silo 8	608			2024*	Bag filter ABF 45	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 29-32	608			2024*	Bag filter ABF52	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 29-32	528			2024*	Bag filter ABF44	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 43-48	528			2024*	Bag filter ABF44	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 43-48	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 8	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 85-96	528			2024*		
Two (2) Coater Buffer Tanks	CBT 15-16	528			2024*		

* Year approved for construction
** Per individual unit
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(j) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat5, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-05, exhausting to stack SR-05.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat6, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-06, exhausting to stack SR-06.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat7, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-07, exhausting to stack SR-07.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat8, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-08, exhausting to stack SR-08.

(k) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat5, approved in 2024 for construction, with maximum capacity of 387,500 square

inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat6, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat7, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat8, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(l) Anode slitting process, consisting of the following:

(1) One (1) Anode slitter, identified as AS5, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF17-ASBF20), and exhausting to stack (02-DCEF-1).

(2) One (1) Anode slitter, identified as AS6, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF21-ASBF24), and exhausting to stack (02-DCEF-1).

(3) One (1) Anode slitter, identified as AS7, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF25-ASBF28), and exhausting to stack (02-DCEF-1).

(4) One (1) Anode slitter, identified as AS8, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF29-ASBF32), and exhausting to stack (02-DCEF-1).

(m) Cathode slitting process, consisting of the following:

(1) One (1) Cathode slitter, identified as CS5, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF17-CSBF20), and exhausting to stack (02-DCEF-2).

(2) One (1) Cathode slitter, identified as CS6, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF21-CSBF24), and exhausting to stack (02-DCEF-2).

(3) One (1) Cathode slitter, identified as CS7, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF25-CSBF28), and exhausting to stack (02-DCEF-2).

(4) One (1) Cathode slitter, identified as CS8, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF29-CSBF32), and exhausting to stack (02-DCEF-2).

(n) One (1) Assembly process, consisting of the following:

(1) Four (4) Stacking Lines, consisting of the following:

Line 5
(A) Thirty-two (32) stackers, identified as S5_1 to S5_32, approved in 2024 for

construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S5_BF1 to S5_BF32) respectively, exhausting to stack (02-DCEF-3).

Line 6
(B) Thirty-two (32) stackers, identified as S6_1 to S6_32, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S4_BF1 to S4_BF32) respectively, exhausting to stack (02-DCEF-4).

Line 7
(C) Twenty-five (25) stackers, identified as S7_1 to S7_25, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S7_BF1 to S7_BF25) respectively, exhausting to stack (02-DCEF-5).

Line 8
(D) Twenty-five (25) stackers, identified as S8_1 to S8_25, approved in 2023 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S8_BF1 to S8_BF25) respectively, exhausting to stack (02-DCEF-6).

(2) Four (4) LPW lines, consisting of the following:

Line 5
(A) Two (2) LPW welding, identified as LPW5-1 to LPW5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF9 to LPWBF10) respectively, exhausting to stack (02-DCEF-7).

Line 6
(B) Two (2) LPW welding, identified as LPW6-1 to LPW6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF11 to LPWBF12) respectively, exhausting to stack (02-DCEF-7).

Line 7
(C) Two (2) LPW welding, identified as LPW7-1 to LPW7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF13 to LPWBF14) respectively, exhausting to stack (02-DCEF-7).

Line 8
(D) Two (2) LPW welding, identified as LPW8-1 to LPW8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF15 to LPWBF16) respectively, exhausting to stack (02-DCEF-7).

(3) Four (4) CanCap Welding lines, consisting of the following:

Line 5
(A) Two (2) CanCap welding, identified as CanCap5-1 to CANCAP5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF9 to CANCAPBF10) respectively, exhausting to stack (02-DCEF-8).

Line 6
(B) Two (2) CanCap welding, identified as CANCAP6-1 to CANCAP6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF11 to CANCAPBF12) respectively, exhausting to stack (02-DCEF-8).

Line 7
(C) Two (2) CanCap welding, identified as CANCAP7-1 to CANCAP7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF13 to CANCAPBF14) respectively, exhausting to stack (02-DCEF-8).

Line 8
(D) Two (2) CanCap welding, identified as CANCAP8-1 to CANCAP8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF15 to CANCAPBF16) respectively, exhausting to stack (02-DCEF-8).

(4) Four (4) electrolyte filling processes, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, approved for construction in 2024, using Activated Carbon Towers (CAT-04a, CAT-04, CAT-04c, CAT-04d, & CAT-04e Standby) for VOC/HAP control, exhausting to stack (S-4a, S-4b, S-4c, S-4d, and S-4e Standby), consisting of the following:

Line 5
(A) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 6
(B) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 7
(C) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 8
(D) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

(5) One (1) General assembly operation, identified as GAO2, approved for construction in 2024, consisting of adhesive and gap filling operations.

(6) One (1) Lime duct injection operation , identified as LDI2, approved for construction in 2024, with a maximum capacity of 6 tons a year of lime

(o) One (1) formation process, identified as Formation, approved in 2024 for construction, using Activated Carbon Towers (CAT-11a, CAT-11b, CAT-11c, CAT-11d, & CAT-11e Standby) for VOC/HAP control, exhausting to stack (S-11a, S-11b, S-11c, S-11d, and S-11e Standby).

(1) One (1) taping process, with a combined maximum process capacity of 3,588 cells per hour, total, consisting of the following:

(A) One (1) taping machine, identified as TM-9, approved in 2024 for construction, controlled by bag filters (TMBF33-TMBF36), exhausting through general exhaust stack 03-EF-301-302.

(B) One (1) taping machine, identified as TM-10, approved in 2024 for construction, controlled by bag filters (TMBF37-TMBF40), exhausting through general exhaust stack 03-EF-301-302.

(C) One (1) taping machine, identified as TM-11, approved in 2023 for construction, controlled by bag filters (TMBF41-TMBF44), exhausting through general exhaust stack 03-EF-301-302.

(D) One (1) taping machine, identified as TM-12, approved in 2024 for construction, controlled by bag filters (TMBF45-TMBF48), exhausting through general exhaust stack 03-EF-301-302.

(E) One (1) taping machine, identified as TM-13, approved in 2024 for construction, controlled by bag filters (TMBF49-TMBF52), exhausting through general exhaust stack 03-EF-301-302.

(F) One (1) taping machine, identified as TM-14, approved in 2024 for construction, controlled by bag filters (TMBF53-TMBF56), exhausting through general exhaust stack 03-EF-301-302.

(G) One (1) taping machine, identified as TM-15, approved in 2024 for construction, controlled by bag filters (TMBF57-TMBF60), exhausting through general exhaust stack 03-EF-301-302.

(H) One (1) taping machine, identified as TM-16, approved in 2024 for construction, controlled by bag filters (TMBF61-TMBF64), exhausting through general exhaust stack 03-EF-301-302.

(2) Four (4) SealPin Welding lines, consisting of the following

Line 5

(A) Two (2) seal pin welding, identified as SPW5-1 to SPW5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (SPWBF5), exhausting through general exhaust stack 03-EF-301-302.

Line 6

(B) Two (2) seal pin welding, identified as SPW6-1 to SPW6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF6) respectively, exhausting through general exhaust stack 03-EF-301-302.

Line 7

(C) Two (2) seal pin welding, identified as SPW7-1 to SPW7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF7) respectively, exhausting through general exhaust stack 03-EF-301-302.

Line 8

(D) Two (2) seal pin welding, identified as SPW8-1 to SPW8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF8) respectively, exhausting to through general exhaust stack 03-EF-301-302.

(3) Four (4) HVC Front Side Moving Device, identified as HVC5-HVC8, approved in 2024 for construction, with a combined maximum capacity of 3,588 cells/hr, and Activated Carbon

Towers (CAT-11a, CAT-11b, CAT-11c, CAT-11d, & CAT-11e Standby) for VOC/HAP control, exhausting to stack (S-11a, S-11b, S-11c, S-11d, and S-11e Standby.

(p) One (1) module process, identified as Module, approved in 2024 for construction, and consisting of the following:

Line 5

(1) One (1) frame side welding, identified as FSW5, approved in 2024 for construction, with a maximum capacity of 897cells/hr, total, and controlled by a bag filter (MBF13), exhausting through general exhaust stack 03-EF-301-302.

(2) One (1) busbar welding, identified as BW5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MB14), exhausting through general exhaust stack 03-EF-301-302.

(3) One (1) side dispenser, identified as SD5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA9-PSA10, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(6) Two (2) curing stations, identified as CS9-CS10, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(7) One (1) Frame end welding, identified as FEW5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF21), exhausting through general exhaust stack 03-EF-301-302.

Line 6

(8) One (1) frame side welding, identified as FSW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF15), exhausting through general exhaust stack 03-EF-301-302.

(9) One (1) busbar welding, identified as BW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF16), exhausting through general exhaust stack 03-EF-301-302.

(10) One (1) side dispenser, identified as SD6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(11) One (1) HBB dispenser, identified as HBB6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(12) Two (2) PSA dispensers, identified as PSA11-PSA12, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(13) Two (2) curing stations, identified as CS11-CS12, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(14) One (1) Frame end welding, identified as FEW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF22), exhausting through general exhaust stack 03-EF-301-302.

Line 7

(15) One (1) frame side welding, identified as FSW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF17), exhausting through general exhaust stack 03-EF-301-302.

(16) One (1) busbar welding, identified as BW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF18), exhausting through general exhaust stack 03-EF-301-302.

(17) One (1) side dispenser, identified as SD7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(18) One (1) HBB dispenser, identified as HBB7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(19) Two (2) PSA dispensers, identified as PSA13-PSA14, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(20) Two (2) curing stations, identified as CS13-CS14, approved in 20243 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(21) One (1) Frame end welding, identified as FEW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF23), exhausting through general exhaust stack 03-EF-301-302.

Line 8

(22) One (1) frame side welding, identified as FSW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF19), exhausting through general exhaust stack 03-EF-301-302.

(23) One (1) busbar welding, identified as BW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF20), exhausting through general exhaust stack 03-EF-301-302.

(24) One (1) side dispenser, identified as SD8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(25) One (1) HBB dispenser, identified as HBB8, approved in 2023 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(26) Two (2) PSA dispensers, identified as PSA15-PSA16, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(27) Two (2) curing stations, identified as CS13-CS14, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(28) One (1) Frame end welding, identified as FEW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF24), exhausting through general exhaust stack 03-EF-301-302.

A.4 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

Plant 1:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating1 to W-Heating3, approved in 2023 for construction and approved for modification in 2024, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating01 through S-Heating-60, approved in 2023 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump1, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Twenty-six (26) cooling towers, identified as CWT01-CWT26, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 4,615 gal/min each, using no control, and exhausting to the atmosphere.

(f) Maintenance welding, gas metal arc welding (GMAW), 5,000 lbs of carbon steel electrode per year, uncontrolled, and exhausting to the indoors.

(g) Maintenance painting, using aerosol cans, with a maximum usage of five (5) 12oz cans per week uncontrolled, and exhausting to the indoors.

(h) Paved roads and parking lots with public access.

(i) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using a low NOx burner for NOx control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

Plant 2:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating4 to W-Heating6, 2024 for construction, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating61 through S-Heating-120, approved in 2024 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Four (4) cooling towers, identified as CWT27-CWT30, approved in 2024 for construction, with a maximum capacity of 5,500 gal/min each, using no control, and exhausting to the atmosphere.

(f) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction with a maximum heat input capacity of 12.50 MMBTU/hr, each, using a low NOx burner for NOx control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

A.5 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21):

Plant 1:

(a) One (1) electrolyte storage tank, identified as EST-1, approved in 2023 for construction, with a nominal capacity of 528 gallons and annual throughput of 1,569 gal/hr, using Activated Carbon Tower (CAT-06) as control, and exhausting to stack (S-6).

(b) One (1) used battery storage room, identified as USB1, approved in 2023 for construction, used for discharging used lithium-ion batteries, with a nominal capacity of 4.17 cells/hr, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5).

(c) One (1) used/recovered nmp storage tank, identified as NMPRT06, approved in 2023 for construction, with a nominal capacity of 528 gallons, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5).

(d) One (1) innovation process for research and development, identified as R&D, uncontrolled, and exhausting indoors.

(e) One (1) wastewater treatment plant.

(f) One (1) diesel storage tank, identified as DST-1, approved in 2023 for construction, with a maximum capacity of 500 gallons, using no control, and exhausting to the atmosphere.

(g) One (1) Packing process, identified as Packing1, approved in 2024 for construction, exhausting indoors.

Plant 2:

(a) One(1) electrolyte storage tank, identified as EST-2, approved in 2024 for construction, with a maximum capacity of 528 gallons and annual throughput of 1,569 gal/hr, using Activated Carbon Tower (CAT-06) as control, and exhausting to stack (S-6).

(b) One (1) used battery storage room, identified as USB-2, approved in 2024 for construction, used for discharging used lithium-ion batteries, with a maximum capacity of 4.87 cells/hr, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5)

(c) One (1) innovation process for research and development, identified as R&D2, uncontrolled, and exhausting indoors.

(d) One (1) diesel storage tank, identified as DST-2, approved in 2024 for construction, with a maximum capacity of 500 gallons, using no control, and exhausting to the atmosphere.

(e) One (1) Packing process, identified as Packing2, approved in 2024 for construction, exhausting indoors.

(f) One (1) innovation process for research and development, identified as R&D2, uncontrolled, and exhausting indoors.

A.6 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Revocation of Permits [326 IAC 2-1.1-9(5)]

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.3 Affidavit of Construction [326 IAC 2-5.1-3(h)][326 IAC 2-5.1-4]

This document shall also become the approval to operate pursuant to 326 IAC 2-5.1-4 when prior to the start of operation, the following requirements are met:

(a) The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), verifying that the emission units were constructed as proposed in the application or the permit. The emission units covered in this permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM if constructed as proposed.

(b) If actual construction of the emission units differs from the construction proposed in the application, the source may not begin operation until the permit has been revised pursuant to 326 IAC 2 and an Operation Permit Validation Letter is issued.

(c) The Permittee shall attach the Operation Permit Validation Letter received from the Office of Air Quality (OAQ) to this permit.

B.4 Permit Term [326 IAC 2-7-5(2)][326 IAC 2-1.1-9.5][326 IAC 2-7-4(a)(1)(D)][IC 13-15-3-6(a)]

(a) This permit, 067-45648-00093, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit or of permits issued pursuant to Title IV of the Clean Air Act and 326 IAC 21 (Acid Deposition Control).

(b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, including any permit shield provided in 326 IAC 2-7-15, until the renewal permit has been issued or denied.

B.5 Term of Conditions [326 IAC 2-1.1-9.5]

Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

(a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or

(b) the emission unit to which the condition pertains permanently ceases operation.

B.6 Enforceability [326 IAC 2-7-7][IC 13-17-12]

Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

B.7 Severability [326 IAC 2-7-5(5)]

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.8 Property Rights or Exclusive Privilege [326 IAC 2-7-5(6)(D)]

This permit does not convey any property rights of any sort or any exclusive privilege.

B.9 Duty to Provide Information [326 IAC 2-7-5(6)(E)]

(a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

(b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.10 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

(a) A certification required by this permit meets the requirements of 326 IAC 2-7-6(1) if:

(1) it contains a certification by a "responsible official" as defined by 326 IAC 2-7-1(35), and

(2) the certification states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) The Permittee may use the attached Certification Form, or its equivalent with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.

(c) A "responsible official" is defined at 326 IAC 2-7-1(35).

B.11 Annual Compliance Certification [326 IAC 2-7-6(5)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than July 1 of each year to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region 5
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

(b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

(c) The annual compliance certification report shall include the following:

(1) The appropriate identification of each term or condition of this permit that is the basis of the certification;

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

(4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-7-5(3); and

(5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

The submittal by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

B.12 Preventive Maintenance Plan [326 IAC 2-7-5(12)][326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this permit or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Permittee's control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The PMP extension notification does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

The Permittee shall implement the PMPs.

(b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions. The PMPs and their submittal do not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.13 Emergency Provisions [326 IAC 2-7-16]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

(1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance and Enforcement Branch), or
Telephone Number: 317-233-0178 (ask for Office of Air Quality, Compliance and Enforcement Branch)
Facsimile Number: 317-233-6865

(5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4(c)(8) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

(g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

B.14 Permit Shield [326 IAC 2-7-15][326 IAC 2-7-20][326 IAC 2-7-12]

(a) Pursuant to 326 IAC 2-7-15, the Permittee has been granted a permit shield. The permit shield provides that compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that either the applicable requirements are included and specifically identified in this permit or the permit contains an explicit determination or concise summary of a determination that other specifically identified requirements are not applicable. The Indiana statutes from IC 13 and rules from 326 IAC, referenced in conditions in this permit, are those applicable at the time the permit was issued. The issuance or

possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a Part 70 permit under 326 IAC 2-7 or for applicable requirements for which a permit shield has been granted.

This permit shield does not extend to applicable requirements which are promulgated after the date of issuance of this permit unless this permit has been modified to reflect such new requirements.

(b) If, after issuance of this permit, it is determined that the permit is in nonconformance with an applicable requirement that applied to the source on the date of permit issuance, IDEM, OAQ shall immediately take steps to reopen and revise this permit and issue a compliance order to the Permittee to ensure expeditious compliance with the applicable requirement until the permit is reissued. The permit shield shall continue in effect so long as the Permittee is in compliance with the compliance order.

(c) No permit shield shall apply to any permit term or condition that is determined after issuance of this permit to have been based on erroneous information supplied in the permit application. Erroneous information means information that the Permittee knew to be false, or in the exercise of reasonable care should have been known to be false, at the time the information was submitted.

(d) Nothing in 326 IAC 2-7-15 or in this permit shall alter or affect the following:

(1) The provisions of Section 303 of the Clean Air Act (emergency orders), including the authority of the U.S. EPA under Section 303 of the Clean Air Act;

(2) The liability of the Permittee for any violation of applicable requirements prior to or at the time of this permit's issuance;

(3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Clean Air Act; and

(4) The ability of U.S. EPA to obtain information from the Permittee under Section 114 of the Clean Air Act.

(e) This permit shield is not applicable to any change made under 326 IAC 2-7-20(b)(2) (Sections 502(b)(10) of the Clean Air Act changes) and 326 IAC 2-7-20(c)(2) (trading based on State Implementation Plan (SIP) provisions).

(f) This permit shield is not applicable to modifications eligible for group processing until after IDEM, OAQ, has issued the modifications. [326 IAC 2-7-12(c)(7)]

(g) This permit shield is not applicable to minor Part 70 permit modifications until after IDEM, OAQ, has issued the modification. [326 IAC 2-7-12(b)(8)]

B.15 Prior Permits Superseded [326 IAC 2-1.1-9.5][326 IAC 2-7-10.5]

(a) All terms and conditions of permits established prior to 067-45648-00093 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

(2) revised under 326 IAC 2-7-10.5, or

(3) deleted under 326 IAC 2-7-10.5.

(b) Provided that all terms and conditions are accurately reflected in this combined permit, all previous registrations and permits are superseded by this combined new source review and part 70 operating permit, except for permits issued pursuant to Title IV of the Clean Air Act and 326 IAC 21 (Acid Deposition Control)

B.16 Termination of Right to Operate [326 IAC 2-7-10][326 IAC 2-7-4(a)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-7-3 and 326 IAC 2-7-4(a).

B.17 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-7-5(6)(C)][326 IAC 2-7-8(a)][326 IAC 2-7-9]

(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Part 70 Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-7-5(6)(C)] The notification by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:

(1) That this permit contains a material mistake.

(2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.

(3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-7-9(a)(3)]

(c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-7-9(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-7-9(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-7-9(c)]

B.18 Permit Renewal [326 IAC 2-7-3][326 IAC 2-7-4][326 IAC 2-7-8(e)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-7-4. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(42). The renewal application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(b) A timely renewal application is one that is:

(1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and

(2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-7 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified, pursuant to 326 IAC 2-7-4(a)(2)(D), in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.19 Permit Amendment or Modification [326 IAC 2-7-11][326 IAC 2-7-12][40 CFR 72]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Pursuant to 326 IAC 2-7-11(b) and 326 IAC 2-7-12(a), administrative Part 70 operating permit amendments and permit modifications for purposes of the acid rain portion of a Part 70 permit shall be governed by regulations promulgated under Title IV of the Clean Air Act. [40 CFR 72]

(c) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(d) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

B.20 Permit Revision Under Economic Incentives and Other Programs [326 IAC 2-7-5(8)][326 IAC 2-7-12(b)(2)]

(a) No Part 70 permit revision or notice shall be required under any approved economic incentives, marketable Part 70 permits, emissions trading, and other similar programs or processes for changes that are provided for in a Part 70 permit.

(b) Notwithstanding 326 IAC 2-7-12(b)(1) and 326 IAC 2-7-12(c)(1), minor Part 70 permit modification procedures may be used for Part 70 modifications involving the use of economic incentives, marketable Part 70 permits, emissions trading, and other similar approaches to the extent that such minor Part 70 permit modification procedures are explicitly provided for in the applicable State Implementation Plan (SIP) or in applicable requirements promulgated or approved by the U.S. EPA.

B.21 Operational Flexibility [326 IAC 2-7-20][326 IAC 2-7-10.5]

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-7-20(b) or (c) without a prior permit revision, if each of the following conditions is met:

(1) The changes are not modifications under any provision of Title I of the Clean Air Act;

(2) Any preconstruction approval required by 326 IAC 2-7-10.5 has been obtained;

(3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);

(4) The Permittee notifies the:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region 5
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

(5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-7-20(b)(1) and (c)(1). The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-7-20(b)(1) and (c)(1).

(b) The Permittee may make Section 502(b)(10) of the Clean Air Act changes (this term is defined at 326 IAC 2-7-1(37)) without a permit revision, subject to the constraint of 326 IAC 2-7-20(a). For each such Section 502(b)(10) of the Clean Air Act change, the required written notification shall include the following:

(1) A brief description of the change within the source;

(2) The date on which the change will occur;

(3) Any change in emissions; and

(4) Any permit term or condition that is no longer applicable as a result of the change.

The notification which shall be submitted is not considered an application form, report or compliance certification. Therefore, the notification by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) Emission Trades [326 IAC 2-7-20(c)]
The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-7-20(c).

(d) Alternative Operating Scenarios [326 IAC 2-7-20(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-7-5(9). No prior notification of IDEM, OAQ or U.S. EPA is required.

(e) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

(f) This condition does not apply to emission trades of SO_2 or NO_X under 326 IAC 21.

B.22 Source Modification Requirement [326 IAC 2-7-10.5]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2.

B.23 Inspection and Entry [326 IAC 2-7-6][IC 13-14-2-2][IC 13-30-3-1][IC 13-17-3-2]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a Part 70 source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy any records that must be kept under the conditions of this permit;

(c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.24 Transfer of Ownership or Operational Control [326 IAC 2-7-11]

(a) The Permittee must comply with the requirements of 326 IAC 2-7-11 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

(b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

B.25 Annual Fee Payment [326 IAC 2-7-19][326 IAC 2-7-5(7)][326 IAC 2-1.1-7]

(a) The Permittee shall pay annual fees to IDEM, OAQ within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.

(b) Except as provided in 326 IAC 2-7-19(e), failure to pay may result in administrative enforcement action or revocation of this permit.

(c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-8590 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.26 Credible Evidence [326 IAC 2-7-5(3)][326 IAC 2-7-6][62 FR 8314][326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards [326 IAC 2-7-5(1)]

C.1 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-1 (Applicability) and 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.2 Open Burning [326 IAC 4-1][IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.3 Incineration [326 IAC 4-2][326 IAC 9-1-2]

The Permittee shall not operate an incinerator except as provided in 326 IAC 4-2 or in this permit. The Permittee shall not operate a refuse incinerator or refuse burning equipment except as provided in 326 IAC 9-1-2 or in this permit.

C.4 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.5 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted. The provisions of 326 IAC 1-7-1(3), 326 IAC 1-7-2, 326 IAC 1-7-3(c) and (d), 326 IAC 1-7-4, and 326 IAC 1-7-5(a), (b), and (d) are not federally enforceable.

C.6 Asbestos Abatement Projects [326 IAC 14-10][326 IAC 18][40 CFR 61, Subpart M]

(a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.

(b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:

(1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or

(2) If there is a change in the following:

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

(c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(c).

(d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(d).

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(e) Procedures for Asbestos Emission Control
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.

(f) Demolition and Renovation
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).

(g) Indiana Licensed Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. The requirement to use an Indiana Licensed Asbestos inspector is not federally enforceable.

Testing Requirements [326 IAC 2-7-6(1)]

C.7 Performance Testing [326 IAC 3-6]

(a) For performance testing required by this permit, a test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.8 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

C.9 Compliance Monitoring [326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

(a) For new units:
Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units shall be implemented on and after the date of initial start-up.

(b) For existing units:
Unless otherwise specified in this permit, for all monitoring requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance to begin such monitoring. If, due to circumstances beyond the Permittee's control, any monitoring equipment required by this permit cannot be installed and operated no later than ninety (90) days after permit issuance, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

C.10 Instrument Specifications [326 IAC 2-1.1-11][326 IAC 2-7-5(3)][326 IAC 2-7-6(1)]

(a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale. The analog instrument shall be capable of measuring values outside of the normal range.

(b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

Corrective Actions and Response Steps [326 IAC 2-7-5][326 IAC 2-7-6]

C.11 Emergency Reduction Plans [326 IAC 1-5-2][326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

no later than 180 days from the date on which this source commences operation.

The ERP does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

(c) If the ERP is disapproved by IDEM, OAQ, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

(f) Upon direct notification by IDEM, OAQ that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

C.12 Risk Management Plan [326 IAC 2-7-5(11)][40 CFR 68]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

C.13 Response to Excursions or Exceedances [326 IAC 2-7-5][326 IAC 2-7-6]

Upon detecting an excursion where a response step is required by the D Section or an exceedance of a limitation in this permit:

(a) The Permittee shall take reasonable response steps to restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing excess emissions.

(b) The response shall include minimizing the period of any startup, shutdown or malfunction. The response may include, but is not limited to, the following:

(1) initial inspection and evaluation;

(2) recording that operations returned or are returning to normal without operator action (such as through response by a computerized distribution control system); or

(3) any necessary follow-up actions to return operation to normal or usual manner of operation.

(c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:

(1) monitoring results;

(2) review of operation and maintenance procedures and records; and/or

(3) inspection of the control device, associated capture system, and the process.

(d) Failure to take reasonable response steps shall be considered a deviation from the permit.

(e) The Permittee shall record the reasonable response steps taken.

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5][326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall submit a description of its response actions to IDEM, OAQ no later than seventy-five (75) days after the date of the test.

(b) A retest to demonstrate compliance shall be performed no later than one hundred eighty (180) days after the date of the test. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred eighty (180) days is not practicable, IDEM, OAQ may extend the retesting deadline.

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

C.15 Emission Statement [326 IAC 2-7-5(3)(C)(iii)][326 IAC 2-7-5(7)][326 IAC 2-7-19(c)][326 IAC 2-6]

Pursuant to 326 IAC 2-6-3(b)(2), starting in 2005 and every three (3) years thereafter, the Permittee shall submit by July 1 an emission statement covering the previous calendar year. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4(c) and shall meet the following requirements:

(1) Indicate estimated actual emissions of all pollutants listed in 326 IAC 2-6-4(a);

(2) Indicate estimated actual emissions of regulated pollutants as defined by 326 IAC 2-7-1(33) (“Regulated pollutant, which is used only for purposes of Section 19 of this rule”) from the source, for purpose of fee assessment.

The statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Quality
100 North Senate Avenue
MC 61-50 IGCN 1003
Indianapolis, Indiana 46204-2251

The emission statement does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35).

C.16 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

(a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. Support information includes the following, where applicable:
  (AA) All calibration and maintenance records.
  (BB) All original strip chart recordings for continuous monitoring instrumentation.
  (CC) Copies of all reports required by the Part 70 permit.

  Records of required monitoring information include the following, where applicable:
  (AA) The date, place, as defined in this permit, and time of sampling or measurements.
  (BB) The dates analyses were performed.
  (CC) The company or entity that performed the analyses.
  (DD) The analytical techniques or methods used.
  (EE) The results of such analyses.
  (FF) The operating conditions as existing at the time of sampling or measurement.

  These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, for all record keeping requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of

permit issuance or the date of initial start-up, whichever is later, to begin such record keeping.

C.17 General Reporting Requirements [326 IAC 2-7-5(3)(C)][326 IAC 2-1.1-11]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Proper notice submittal under Section B - Emergency Provisions satisfies the reporting requirements of this paragraph. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported except that a deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official" as defined by 326 IAC 2-7-1(35). A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

(b) The address for report submittal is:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(d) The first report shall cover the period commencing on the date of issuance of this permit or the date of initial start-up, whichever is later, and ending on the last day of the reporting period. Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit, “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

Stratospheric Ozone Protection

C.18 Compliance with 40 CFR 82 and 326 IAC 22-1

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with applicable standards for recycling and emissions reduction.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 1-4	1,057	105	918,079	2023*	Bag filter CBF15	01-PEF-03-05
Four (4) HD Mixer Tanks	HD 1-4	634			2023*	Bag filter CBF2	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 1-2	792			2023*	Bag filter CBF8	01-PEF-03-05
One (1) Binder Booth	Binder booth 1	528			2023*	Bag filter CBF16	01-PEF-03-05
Four (4) Cathode Silos	Cathode silo 1-4	1,057			2023*	Bag filter CBF7	01-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 1-4	528			2023*	Bag filter CBF7	01-PEF-03-05
Two (2) Binder Mixers tanks	Binder Mixer 1-2	528			2023*	Bag filter CBF1	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 1-4	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Emf Buffer Tank	EMFBT 1-4	528			2023*		
Seven (7) Storage Tanks	ST 1-7	528			2023*		
One (1) Coater Buffer Tank	CBT 1	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 5-7	1057	105	918,079	2023*	Bag filter CBF17	01-PEF-03-05
Three (3) HD Mixer Tanks	HD 5-7	634			2023*	Bag filter CBF3	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 3-4	792			2023*	Bag filter CBF10	01-PEF-03-05
One (1) Binder Booth	Binder Booth 2	528			2023*	Bag filter CBF18	01-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 5-7	1057			2023*	Bag filter CBF9	01-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 5-7	528			2023*	Bag filter CBF9	01-PEF-03-05
Two (2) Binder Mixers	Binder Mixer 3-4	528			2023*	Bag filter CBF1	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Binder Storage Tanks	BST 5-8	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	
Three (3) Emf Buffer Tank	EMFBT 5-7	528			2023*		
Seven (7) Storage Tanks	ST 8-14	528			2023*		
One (1) Coater Buffer Tank	CBT 2	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 8-11	1057	105	918,079	2023*	Bag filter CBF19	01-PEF-03-05
Four (4) HD Mixer Tanks	HD 8-11	634			2023*	Bag filter CBF5	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 5-6	792			2023*	Bag filter CBF12	01-PEF-03-05

One (1) Binder Booth	Binder booth 3	528			2023*	Bag filter CBF20	01-PEF-03-05
Four (4) Cathode Silos	Cathode silo 8-11	1057			2023*	Bag filter CBF11	01-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 8-11	528			2023*	Bag filter CBF11	01-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 5-6	528			2023*	Bag filter CBF4	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 9-12	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Emf Buffer Tank	EMFBT 8-11	528			2023*		
Seven (7) Storage Tanks	ST 15-21	528			2023*		
One (1) Coater Buffer Tank	CBT 3	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 12-14	1057	105	918,079	2023*	Bag filter CBF21	01-PEF-03-05
Three (3) HD Mixer Tanks	HD 12-14	634			2023*	Bag filter CBF6	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 7-8	792			2023*	Bag filter CBF14	01-PEF-03-05
One (1) Binder Booth	Binder Booth 4	528			2023*	Bag filter CBF22	01-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 12-14	1057			2023*	Bag filter CBF13	01-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 12-14	528			2023*	Bag filter CBF13	01-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 7-8	528			2023*	Bag filter CBF4	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 13-16	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Three (3) Emf Buffer Tank	EMFBT 12-14	528			2023*		
Seven (7) Storage Tanks	ST 22-28	528			2023*		
One (1) Coater Buffer Tank	CBT 4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as NMPST 1 and NMPST 2; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 3 and NMPST 4.

Under 40 CFR 63, Subpart CCCCCCC, the NMP Storage Tanks associated with the cathode raw material handling and mixing line is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	PM Limit (lbs/hour)	PM10 Limit (lbs/hour)	PM2.5 Limit (lbs/hour)
Cline1 to Cline4	01-PEF-03, 01-PEF-04 and 01-PEF-05	5.46	5.46	5.46

*** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.

Compliance with these limits, combined with the potential to emit PM, PM_{10}, and $PM_{2.5}$ from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM_{10}, and $PM_{2.5}$ to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.1.2 Hazardous Air Pollutant (HAP) Minor Limits [40 CFR 63]

In order to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA), the Permittee shall comply with the following:

(a) The Nickel and Cobalt emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	Nickel Limit* (lbs/hour)	Cobalt Limit** (lbs/hour)
Cline1 to Cline4	01-PEF-03, 01-PEF-04 and 01-PEF-05	1.13	0.59

* Nickel refers to Nickel and Nickel compounds

** Cobalt refers to Cobalt and Cobalt compounds
*** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.

Compliance with these limits, combined with the potential to emit HAP from all other emission units at the source, shall limit the source-wide potential to emit single HAP to less than 10 tons per twelve (12) consecutive month period and the source-wide potential to emit total HAPs to less than 25 tons per twelve (12) consecutive month period, and shall render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

D.1.3 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Cathode Inlet Tanks	Cathode Inlet 1 - Cathode Inlet 14	0.03 grain/dscf *
HD Tanks	HD 1- HD 14	0.03 grain/dscf *
Binder Silos	Binder Silo1- Binder Silo8	0.03 grain/dscf *
Binder Booth	Binder booth 1- Binder booth 4	0.03 grain/dscf *
Cathode Silos	Cathode silo 1- Cathode silo 14	0.03 grain/dscf *
Cathode Mixer Hoppers	CMH 1- CMH 14	0.03 grain/dscf *
Binder Mixes	Binder Mixer 1- Binder Mixer 8	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

D.1.4 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.1.5 Particulate and HAP Control

(a) In order to assure compliance with Conditions D.1.1, D.1.2, and D.1.3, the bag filters for particulate and HAP control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit/Process Name	Unit ID	Bag Filter ID
Cathode Inlet Tanks	Cathode Inlet 1 - Cathode Inlet 4	CBF15
	Cathode Inlet 5 - Cathode Inlet 7	CBF17
	Cathode Inlet 8 - Cathode Inlet 11	CBF19
	Cathode Inlet 12 - Cathode Inlet 14	CBF21
HD Tanks	HD 1 - HD 4	CBF2
	HD 5 - HD 7	CBF3
	HD 8 - HD 11	CBF5
	HD 12 - HD 14	CBF6
Binder Silos	Binder Silo1 - Binder Silo2	CBF8
	Binder Silo3 - Binder Silo4	CBF10
	Binder Silo5 - Binder Silo6	CBF12
	Binder Silo7 - Binder Silo8	CBF14
Binder Booth	Binder booth 1	CBF16
	Binder booth 2	CBF18
	Binder booth 3	CBF20
	Binder booth 4	CBF22
Cathode Silos	Cathode silo 1 - Cathode silo 4	CBF7
	Cathode silo 5 - Cathode silo 7	CBF9

Unit/Process Name	Unit ID	Bag Filter ID
	Cathode silo 8 - Cathode silo 11	CBF11
	Cathode silo 12 - Cathode silo 14	CBF13
Cathode Mixer Hoppers	CMH 1 - CMH 4	CBF7
	CMH 5 - CMH 7	CBF9
	CMH 8 - CMH 11	CBF11
	CMH 12 - CMH 14	CBF13
Binder Mixes	Binder Mixer 1 - Binder Mixer 2	CBF1
	Binder Mixer 3 - Binder Mixer 4	
	Binder Mixer 5 - Binder Mixer 6	CBF4
	Binder Mixer 7 - Binder Mixer 8	

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.1.6 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.1.1 and D.1.2, not later than 180 days after startup of the emission units and associated controls associated with CLine1-CLine4, the Permittee shall perform PM, PM_{10}, $PM_{2.5}$, Nickel, and Cobalt testing on the stacks identified as " 01-PEF-03, 01-PEF-04 and 01-PEF-05" simultaneously utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

(b) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.1.7 Parametric Monitoring - Bag Filters

The Permittee shall record the pressure drop across the bag filters listed in the table below at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a bag filter is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

Bag Filter ID				
CBF1	CBF6	CBF11	CBF16	CBF21
CBF2	CBF7	CBF12	CBF17	CBF22
CBF3	CBF8	CBF13	CBF18	
CBF4	CBF9	CBF14	CBF19	
CBF5	CBF10	CBF15	CBF20	

The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or

replaced at least once every six (6) months.

D.1.8 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.1.9 Record Keeping Requirement

(a) To document the compliance status with Condition D.1.7, the Permittee shall maintain daily records of the pressure drop for each bag filter. The Permittee shall include in its daily record when a pressure drop is not taken and the reason for the lack of a pressure drop record (e.g., the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

(f) One (1) Anode raw material handling and mixing line, identified as ALine1, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 1-3	608	125	1,091,590	2023*	Bag filter ABF2	01-PEF-01-02
Three (3) PD Mixers	PDM 4-6	608			2023*	Bag filter ABF3	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 1-3	528			2023*	Bag filter ABF1	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 1	792			2023*	Bag filter ABF20	01-PEF-01-02
One (1) CMC Booth	CMC Booth 1	792			2023*	Bag filter ABF20	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 1-2	792			2023*	Bag filter ABF12	01-PEF-01-02
One (1) CMC Silo	CMC Silo 1	792			2023*	Bag filter ABF 12	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 1-4	1057			2023*	Bag filter ABF19	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 1-4	1057			2023*	Bag filter ABF11	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 1-6	528			2023*	Bag filter ABF11	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 1-6	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 1	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 1-12	528			2023*		
Two (2) Coater Buffer Tanks	CBT 1-2	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(g) One (1) Anode raw material handling and mixing line, identified as ALine2, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 7-9	608	125	1,091,590	2023*	Bag filter ABF4	01-PEF-01-02
Three (3) PD Mixers	PDM 10-12	608			2023*	Bag filter ABF5	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 4-6	528			2023*	Bag filter ABF1	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 2	792			2023*	Bag filter ABF22	01-PEF-01-02
One (1) CMC Booth	CMC Booth 2	792			2023*	Bag filter ABF22	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 3-4	792			2023*	Bag filter ABF14	01-PEF-01-02
One (1) CMC Silo	CMC Silo 2	792			2023*	Bag filter ABF 14	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 5-8	1057			2023*	Bag filter ABF21	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 5-8	1057			2023*	Bag filter ABF13	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 7-12	528			2023*	Bag filter ABF13	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 7-12	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 2	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 13-24	528			2023*		
Two (2) Coater Buffer Tanks	CBT 3-4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(h) One (1) Anode raw material handling and mixing line, identified as ALine 3, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 13-15	608	125	1,091,590	2023*	Bag filter ABF7	01-PEF-01-02
Three (3) PD Mixers	PDM 16-18	608			2023*	Bag filter ABF8	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 7-9	528			2023*	Bag filter ABF6	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 3	792			2023*	Bag filter ABF24	01-PEF-01-02
One (1) CMC Booth	CMC Booth 3	792			2023*	Bag filter ABF24	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 5-6	792			2023*	Bag filter ABF16	01-PEF-01-02
One (1) CMC Silo	CMC Silo 3	792			2023*	Bag filter ABF16	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 9-12	1057			2023*	Bag filter ABF23	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 9-12	1057			2023*	Bag filter ABF15	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 13-18	528			2023*	Bag filter ABF15	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 13-18	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 3	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 25-36	528			2023*		
Two (2) Coater Buffer Tanks	CBT 5-6	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(i) One (1) Anode raw material handling and mixing line, identified as ALine 4, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 19-21	608	125	1,091,590	2023*	Bag filter ABF9	01-PEF-01-02
Three (3) PD Mixers	PDM 22-24	608			2023*	Bag filter ABF10	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 10-12	528			2023*	Bag filter ABF6	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 4	608			2023*	Bag filter ABF26	01-PEF-01-02
One (1) CMC Booth	CMC Booth 4	608			2023*	Bag filter ABF26	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 7-8	528			2023*	Bag filter ABF18	01-PEF-01-02
One (1) CMC Silo	CMC Silo 4	608			2023*	Bag filter ABF 18	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 13-16	608			2023*	Bag filter ABF25	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 13-16	528			2023*	Bag filter ABF17	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 19-24	528			2023*	Bag filter ABF17	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 19-24	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 4	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 37-48	528			2023*		
Two (2) Coater Buffer Tanks	CBT 7-8	528			2023*		

* Year approved for construction
** Per individual unit
*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	PM Limit (lbs/hour)	PM10 Limit (lbs/hour)	PM2.5 Limit (lbs/hour)
Aline1 to Aline4	01-PEF-01 and 01-PEF-02	8.75	8.75	8.75

*** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed

Compliance with these limits, combined with the potential to emit PM, PM_{10}, and $PM_{2.5}$ from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM_{10}, and $PM_{2.5}$ to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.2.2 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
PD Mixers	PDM 1- PDM 24	0.03 grain/dscf *
CMC Mixers	CMC Mixer 1- CMC Mixer 12	0.03 grain/dscf *
Anode Conductive Powder Booth	ACPB 1- ACPB 4	0.03 grain/dscf *
CMC Booth	CMC Booth 1- CMC Booth 4	0.03 grain/dscf *
Anode Conductive Powder Silos	ACPS 1- ACPS 8	0.03 grain/dscf *
CMC Silo	CMC Silo 1- CMC Silo 4	0.03 grain/dscf *
Anode Inlets	Anode Inlet 1- Anode Inlet 16	0.03 grain/dscf *
Anode Silos	Anode Silo 1- Anode Silo 16	0.03 grain/dscf *
Anode Mixer Hoppers	AMH1-AMH24	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

D.2.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.2.4 Particulate Control

(a) In order to assure compliance with Conditions D.2.1, and D.2.2, the bag filters for particulate control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit/Process Name	Unit ID	Bag Filter ID
PD Mixers	PDM 1 - PDM 3	ABF2
	PDM 4 - PDM 6	ABF3
	PDM 7 - PDM 9	ABF4
	PDM 10 - PDM 12	ABF5

Unit/Process Name	Unit ID	Bag Filter ID
	PDM 13 - PDM 15	ABF7
	PDM 16 - PDM 18	ABF8
	PDM 19 - PDM 21	ABF9
	PDM 22 - PDM 24	ABF10
CMC Mixers	CMC Mixer 1 - CMC Mixer 3	ABF1
	CMC Mixer 4 - CMC Mixer 6	
	CMC Mixer 7 - CMC Mixer 9	ABF6
	CMC Mixer 10 - CMC Mixer 12	
Anode Conductive Powder Booth	ACPB 1	ABF20
	ACPB 2	ABF22
	ACPB 3	ABF24
	ACPB 4	ABF26
CMC Booth	CMC Booth 1	ABF20
	CMC Booth 2	ABF22
	CMC Booth 3	ABF24
	CMC Booth 4	ABF26
Anode Conductive Powder Silos	ACPS 1-2	ABF12
	ACPS 3-4	ABF14
	ACPS 5-6	ABF16
	ACPS 7-8	ABF18
CMC Silo	CMC Silo 1	ABF12
	CMC Silo 2	ABF14
	CMC Silo 3	ABF16
	CMC Silo 4	ABF18
Anode Inlets	Anode Inlet 1-4	ABF19
	Anode Inlet 5-8	ABF21
	Anode Inlet 9-12	ABF23
	Anode Inlet 13-15	ABF25
Anode Silos	Anode Silo 1-4	ABF11
	Anode Silo 5-8	ABF13
	Anode Silo 9-12	ABF15
	Anode Silo 13-16	ABF17
Anode Mixer Hoppers	AMH 1-6	ABF11
	AMH 7-12	ABF13
	AMH 13-18	ABF15
	AMH 19-24	ABF17

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.2.5 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.2.1, not later than 180 days after startup of the emission units and controls associated with ALine1-Aline4, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$, testing of the stacks identified as "01-PEF-01 and 01-PEF-02" simultaneously utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

(b) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.2.6 Parametric Monitoring - Bag Filters

The Permittee shall record the pressure drop across the bag filters listed in the table below at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a bag filter is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

Bag Filter ID						
ABF1	ABF5	ABF9	ABF13	ABF17	ABF21	ABF25
ABF2	ABF6	ABF10	ABF14	ABF18	ABF22	ABF26
ABF3	ABF7	ABF11	ABF15	ABF19	ABF23	
ABF4	ABF8	ABF12	ABF16	ABF20	ABF24	

The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.2.7 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.2.8 Record Keeping Requirement

(a) To document the compliance status with Condition D.2.6, the Permittee shall maintain daily records of the pressure drop for each bag filter. The Permittee shall include in its daily record when a pressure drop is not taken and the reason for the lack of a pressure drop record (e.g., the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

(j) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat1, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-01, exhausting to stack SR-01.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat2, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-02, exhausting to stack SR-02.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat3, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-03, exhausting to stack SR-03.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat4, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-04, exhausting to stack SR-04.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.3.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The controlled VOC emissions from each coating line C-coat1, C-coat2, C-coat3 and C-coat4, shall be less than 4.66 lb/hr, each.

Compliance with these limits, combined with the potential to emit VOC from all other emission units at this source, shall limit the source-wide total potential to emit of VOC to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.3.2 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the Permittee shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from each of the four coating lines, identified as C-coat1, C-coat2, C-coat3 and C-coat4.

D.3.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.3.4 VOC Control

In order to ensure compliance with Conditions D.3.1 and D.3.2, the integral Solvent Recovery towers, identified as SRT-01 to SRT-04, shall be in operation and control emissions from each coating line, identified as C-coat1, C-coat2, C-coat3 and C-coat4 at all times when the coating lines are in operation.

D.3.5 Testing Requirements [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.3.1 and D.3.2, not later than 180 days after startup of the coating line, identified as C-coat1 or C-coat2 or C-coat3 or C-coat4, the Permittee shall perform VOC testing (including emission rate, overall destruction efficiency, and overall capture efficiency) on one (1) of the associated integral Solvent recovery tower (SRT-01 or SRT-02 or SRT-03 or SRT-04) with testing alternated between SRT01,SRT02, SRT-03 and SRT04 utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall alternate between SRT01, SRT02, SRT-03 and SRT04 for each test cycle, such that testing on a Solvent Recovery tower shall not be repeated until SRT01, SRT02, SRT-03 and SRT04 have each been tested.

Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

D.3.6 Volatile Organic Compounds (VOC) [326 IAC 8-1-2]

(a) Pursuant to 326 IAC 8-1-2(b), the VOC emissions shall be limited to no greater than the equivalent emissions, expressed as pounds of VOC per gallon of coating solids, allowed under the applicable emission limitation contained in D.3.2. Equivalency shall be determined by the following equation:

$$E = L / (1 - (L/D))$$

Where:

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied

L = Applicable emission limit in pounds of VOC per gallon of coating. 2.6 pounds of VOC per gallon less water

D = Baseline solvent density of VOC in coating and shall be equal to 7.36 pounds per gallon of solvent;

A solvent density of 7.36 pounds of VOC per gallon of coating shall be used to determine equivalent pounds of VOC per gallon of solids for the applicable emission limit contained in this article.

(b) The pounds of VOC per gallon of coating solids shall be limited to less than 4.02 pounds per gallon of solids.

(c) Pursuant to 326 IAC 8-1-2(c), the overall efficiency of the capture system and control device shall be no less than the equivalent calculated by the following equation:

O = (V - E) / V * 100

Where:

O = Equivalent overall efficiency of the capture system and control device as a percentage.
V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied.
E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied (4.02 pounds of VOC per gallon of solids).

The overall efficiency of each integral Solvent Recovery Tower (SRT01-SRT04) shall be greater than 95.0%.

D.3.7 Volatile Organic Compounds (VOC)[326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Conditions D.3.1 and D.3.2 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the “as supplied” and “as applied” VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.3.8 Solvent Recovery Tower Monitoring

(a) In order to ensure compliance with Conditions D.3.1 and D.3.2, a continuous monitoring system shall be calibrated, maintained, and operated on each of the integral Solvent Recovery Towers, SRT01-SRT04, for measuring coolant exit temperature. For purposes of this condition continuous shall mean temperature measurement no less often than once per fifteen (15) minutes. The output of this system shall be recorded as a three (3) hour average. The integral Solvent Recovery Towers, (SRT01-SRT04) shall be operated at the 3-hour average temperature which shall be recommended by the manufacturer.

(b) On and after the date the stack test results are available, the Permittee shall ensure that coolant exit temperatures of the integral Solvent Recovery Towers shall be at or below the coolant exit temperatures as observed during the latest complaint stack test. The minimum specified temperature is the three (3) hour average temperature as observed during the most recent valid compliant stack test.

(c) In order to ensure compliance with Conditions D.3.1 and D.3.2, a continuous monitoring system shall be calibrated, maintained, and operated on each of the integral Solvent Recovery Towers, SRT01-SRT04, for measuring water flow rate. For purposes of this condition continuous shall mean water flow rate measurement no less often than once per fifteen (15) minutes. The output of this system shall be recorded as a three (3) hour average. The integral Solvent Recovery Tower, (SRT01-SRT04) shall be operated at the 3-hour average water flow rate which shall be recommended by the manufacturer.

(d) The Permittee shall monitor daily and record the pressure drop across the fan for each integral Solvent Recovery Tower (SRT01-SRT04) at least once per day. The integral Solvent Recovery Tower, (SRT01-SRT04) shall be operated at a pressure drop across the fan which shall be recommended by the manufacturer.

If a condition exists which should result in a response, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response required by this condition. Failure to take a reasonable response shall be considered a deviation from this permit.

D.3.9 Solvent Recovery Tower Outlet Monitoring

(a) The Permittee shall monitor and record the outlet VOC concentration (ppm by volume as propane) of each integral Solvent Recovery Tower, (SRT01-SRT04) exhaust when any coating line, identified as C-coat1, C-coat2, C-coat3 and C-coat4 is in operation at least once per day.

(b) The Permittee shall operate the integral Solvent Recovery Tower, (SRT01-SRT04) at or below the average concentration as based on manufacturer specification.

(c) If the concentration rises above the above-mentioned average concentration, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

(d) The instruments used for determining outlet VOC concentration shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every week or as recommended by the manufacturer.

D.3.10 Solvent Recovery Tower Failure Detection

In the event that a Solvent recovery tower failure has been observed:

(a) For a Solvent recovery tower controlling emissions from a process operated continuously, a failed unit and the associated process will be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a Solvent recovery tower controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.3.11 Record Keeping Requirement

(a) In order to document the compliance status with Condition D.3.8(a) and D.3.8(b), the Permittee shall maintain continuous temperature records (on a 3-hour average basis) for the coolant exiting through each integral Solvent Recovery tower and the 3-hour average temperature used to demonstrate compliance during the most recent compliant stack test. The Permittee shall include in its records when the continuous temperature records were not taken and the reason for the lack of continuous temperature records (e.g. the process did not operate that day).

(b) To document the compliance status with Condition D.3.8(c) , the Permittee shall maintain continuous records (on a 3-hour average basis) of the water flow rate at each integral Solvent Recovery Tower, (SRT01-SRT04). The Permittee shall include in its records when continuous water flow rate reading is not taken and the reason for the lack of continuous water flow rate reading (e.g., the process did not operate that day).

(c) To document the compliance status with Condition D.3.8(d) , the Permittee shall maintain daily records of the record the pressure drop across the fan for each integral Solvent Recovery Tower, (SRT01-SRT04) The Permittee shall include in its daily records when a pressure reading is not taken and the reason for the lack of the pressure reading (e.g., the process did not operate that day).

(d) To document the compliance status with Condition D.3.9, the Permittee shall maintain records of the daily VOC monitoring for each integral Solvent Recovery Tower, (SRT01-SRT04). The Permittee shall include in its daily records when a outlet concentration reading is not taken and the reason for the lack of the outlet concentration reading (e.g., the process did not operate that day).

(e) Section C - General Record Keeping Requirements, contains the Permittee's obligations with regard to the records required by this condition.

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

(k) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat1, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat2, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat3, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat4, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.4.1 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the Permittee shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from each of the four coating lines, identified as A-coat1, A-coat2, A-coat3 and A-coat4.

D.4.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.4.3 Volatile Organic Compounds [326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Condition D.4.1 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the “as supplied” and “as applied” VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.4.4 Record Keeping Requirement

(a) To document the compliance status with Condition D.4.1, the Permittee shall maintain records in accordance with (1) through (2) below. Records maintained for (1) through (2) shall be taken as stated below and shall be complete and sufficient to establish compliance with the VOC usage limits established in Condition D.4.1.

(1) The VOC content of each coating material and solvent used less water.

(2) The amount of each coating material and solvent used on monthly basis.

(A) Records shall include purchase orders, invoices, and safety data sheets (SDS) necessary to verify the type and amount used.

(B) Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents.

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

(l) Anode slitting process, consisting of the following:

(1) One (1) Anode slitter, identified as AS1, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF1-ASBF4), and exhausting to stack (01-DCEF-1).

(2) One (1) Anode slitter, identified as AS2, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF5-ASBF8), and exhausting to stack (01-DCEF-1).

(3) One (1) Anode slitter, identified as AS3, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF9-ASBF12), and exhausting to stack (01-DCEF-1).

(4) One (1) Anode slitter, identified as AS4, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF13-ASBF16), and exhausting to stack (01-DCEF-1).

(m) Cathode slitting process, consisting of the following:

(1) One (1) Cathode slitter, identified as CS1, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF1-CSBF4), and exhausting to stack (01-DCEF-2).

(2) One (1) Cathode slitter, identified as CS2, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF5-CSBF8), and exhausting to stack (01-DCEF-2).

(3) One (1) Cathode slitter, identified as CS3, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF9-CSBF12), and exhausting to stack (01-DCEF-2).

(4) One (1) Cathode slitter, identified as CS4, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF13-CSBF16), and exhausting to stack (01-DCEF-2).

(n) One (1) Assembly process, consisting of the following:

(1) Four (4) Stacking Lines, consisting of the following:

Line 1

(A) Thirty-two (32) stackers, identified as S1_1 to S1_32, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S1_BF1 to S1_BF32) respectively, exhausting to stack (01-DCEF-3).

Line 2

(B) Thirty-two (32) stackers, identified as S2_1 to S2_32, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S2_BF1 to

S2_BF32) respectively, exhausting to stack (01-DCEF-4).

Line 3

(C) Twenty-five (25) stackers, identified as S3_1 to S3_25, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S3_BF1 to S3_BF25) respectively, exhausting to stack (01-DCEF-5).

Line 4

(D) Twenty-five (25) stackers, identified as S4_1 to S4_25, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S4_BF1 to S4_BF25) respectively, exhausting to stack (01-DCEF-6).

(2) Four (4) LPW lines, consisting of the following:

Line 1

(A) Two (2) LPW welding, identified as LPW1-1 to LPW1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF1 to LPWBF2) respectively, exhausting to stack (01-DCEF-7)

Line 2

(B) Two (2) LPW welding, identified as LPW2-1 to LPW2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF3 to LPWBF4) respectively, exhausting to stack (01-DCEF-7)

Line 3

(C) Two (2) LPW welding, identified as LPW3-1 to LPW3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF5 to LPWBF6) respectively, exhausting to stack (01-DCEF-7)

Line 4

(D) Two (2) LPW welding, identified as LPW4-1 to LPW4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF7 to LPWBF8) respectively, exhausting to stack (01-DCEF-7)

(3) Four (4) CanCap Welding lines, consisting of the following:

Line 1

(A) Two (2) CanCap welding, identified as CanCap1-1 to CANCAP1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF1 to CANCAPBF2) respectively, exhausting to stack (01-DCEF-8).

Line 2

(B) Two (2) CanCap welding, identified as CANCAP2-1 to CANCAP2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF3 to CANCAPBF4) respectively, exhausting to stack (01-DCEF-8).

Line 3

(C) Two (2) CanCap welding, identified as CANCAP3-1 to CANCAP3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF5 to CANCAPBF6) respectively, exhausting to stack (01-DCEF-8).

Line 4

(D) Two (2) CanCap welding, identified as CANCAP4-1 to CANCAP4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF7 to CANCAPBF8) respectively, exhausting to stack (01-DCEF-8).

(4) Four (4) electrolyte filling processes, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, approved for construction in 2023 and approved for modification in 2024, using Activated Carbon Towers (CAT-02a, CAT-02b, CAT-02c, CAT-02d, & CAT-02e Standby) for VOC/HAP control for all four lines, exhausting to stack (S-2a, S-2b, S-2c, S-2d, and S-2e Standby), consisting of the following:

Line 1

(A) Eight (8) electrolyte filling machines, identified as EFM1-EFM8, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 2

(B) Eight (8) electrolyte filling machines, identified as EFM9-EFM16, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 3

(B) Eight (8) electrolyte filling machines identified as EFM17-EFM24, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 4

(C) Eight (8) electrolyte filling machines, identified as EFM25-EFM32, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

(5) One (1) General assembly operation, identified as GAO1, approved for construction in 2024, consisting of adhesive and gap filling operations.

(6) One (1) Lime duct injection operation , identified as LDI1, approved for construction in 2024, with a maximum capacity of 6 tons a year of lime

(o) One (1) formation process, identified as Formation, approved in 2023 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(1) One (1) taping process, with a combined maximum process capacity of 3,588 cells per hour, total, consisting of the following:

(A) One (1) taping machine, identified as TM-1, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF1-TMBF4), exhausting through general exhaust stack 02-EF-301-302.

(B) One (1) taping machine, identified as TM-2, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF5-TMBF8), exhausting through general exhaust stack 02-EF-301-302.

(C) One (1) taping machine, identified as TM-3, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF9-TMBF12), exhausting through general exhaust stack 02-EF-301-302.

(D) One (1) taping machine, identified as TM-4, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF13-TMBF16), exhausting through general exhaust stack 02-EF-301-302.

(E) One (1) taping machine, identified as TM-5, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF17-TMBF20), exhausting through general exhaust stack 02-EF-301-302.

(F) One (1) taping machine, identified as TM-6, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF21-TMBF24), exhausting through general exhaust stack 02-EF-301-302.

(G) One (1) taping machine, identified as TM-7, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF25-TMBF28), exhausting through general exhaust stack 02-EF-301-302.

(H) One (1) taping machine, identified as TM-8, approved in 2023 for construction and approved in 2024 for modification, and controlled by bag filters (TMBF29-TMBF32), exhausting through general exhaust stack 02-EF-301-302.

(2) Four (4) SealPin Welding lines, consisting of the following:

Line 1

(A) Two (2) seal pin welding, identified as SPW1-1 to SPW1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (SPWBF1), exhausting through general exhaust stack 02-301-302.

Line 2

(B) Two (2) seal pin welding, identified as SPW2-1 to SPW2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF2) respectively, exhausting through general exhaust stack 02-EF-301-302.

Line 3

(C) Two (2) seal pin welding, identified as SPW3-1 to SPW3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF3) respectively, exhausting through general exhaust stack 02-EF-301-302.

Line 4

(D) Two (2) seal pin welding, identified as SPW4-1 to SPW4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum

capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF4) respectively, exhausting to through general exhaust stack 02-EF-301-302.

(3) Four (4) HVC Front Side Moving Device, identified as HVC1-HVC4, approved in 2023 for construction and approved in 2024 for modification, with a combined maximum capacity of 3,588 cells/hr, and Activated Carbon Tower (CAT-03a, CAT-03b & CAT-03c /Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(p) One (1) module process, identified as Module, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following

Line 1

(1) One (1) frame side welding, identified as FSW1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897cells/hr, total, and controlled by a bag filter (MBF1), exhausting through general exhaust stack 02-EF-301-302.

(2) One (1) busbar welding, identified as BW1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF2), exhausting through general exhaust stack 02-EF-301-302.

(3) One (1) side dispenser, identified as SD1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA1-PSA2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(6) Two (2) curing stations, identified as CUS1-CUS2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(7) One (1) Frame end welding, identified as FEW1, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF9), exhausting through general exhaust stack 02-EF-301-302.

Line 2

(8) One (1) frame side welding, identified as FSW2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF3), exhausting through general exhaust stack 02-EF-301-302.

(9) One (1) busbar welding, identified as BW2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF4), exhausting through general exhaust stack 02-EF-301-302.

(10) One (1) side dispenser, identified as SD2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr,

uncontrolled and venting indoor.

(11) One (1) HBB dispenser, identified as HBB2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(12) Two (2) PSA dispensers, identified as PSA3-PSA4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(13) Two (2) curing stations, identified as CUS3-CUS4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(14) One (1) Frame end welding, identified as FEW2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF10), exhausting through general exhaust stack 02-EF-301-302.

Line 3

(15) One (1) frame side welding, identified as FSW3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF5), exhausting through general exhaust stack 02-EF-301-302.

(16) One (1) busbar welding, identified as BW3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF6), exhausting through general exhaust stack 02-EF-301-302.

(17) One (1) side dispenser, identified as SD3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(18) One (1) HBB dispenser, identified as HBB3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(19) Two (2) PSA dispensers, identified as PSA5-PSA6, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(20) Two (2) curing stations, identified as CUS5-CUS6, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(21) One (1) Frame end welding, identified as FEW3, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF11), exhausting through general exhaust stack 02-EF-301-302.

Line 4

(22) One (1) frame side welding, identified as FSW4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF7), exhausting through general exhaust stack 02-EF-301-302.

(23) One (1) busbar welding, identified as BW4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF8), exhausting through general exhaust stack 02-EF-301-302.

(24) One (1) side dispenser, identified as SD4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(25) One (1) HBB dispenser, identified as HBB4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(26) Two (2) PSA dispensers, identified as PSA7-PSA8, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(27) Two (2) curing stations, identified as CUS7-CUS8, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(28) One (1) Frame end welding, identified as FEW4, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF12), exhausting through general exhaust stack 02-EF-301-302.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.5.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Anode Slitters	AS1-AS4	0.03 grain/dscf *
Cathode Slitters	CS1-CS4	0.03 grain/dscf *
Stackers	S1_1 to S1_32	0.03 grain/dscf *
	S2_1 to S2_32	
	S3_1 to S3_25	
	S4_1 to S4_25	
LPW welding	LPW1-1 to LPW1-2	0.03 grain/dscf *
	LPW2-1 to LPW2-2	
	LPW3-1 to LPW3-2	
	LPW4-1 to LPW4-2	
CanCap welding	CanCap1-1 to CANCAP1-2	0.03 grain/dscf *
	CanCap2-1 to CANCAP2-2	
	CanCap3-1 to CANCAP3-2	
	CanCap4-1 to CANCAP4-2	
seal pin welding	SPW1-1 to SPW1-2	0.03 grain/dscf *
	SPW2-1 to SPW2-2	
	SPW3-1 to SPW3-2	
	SPW4-1 to SPW4-2	

Taping machines	TM1-TM8	0.03 grain/dscf *
frame side welding	FSW1-FSW4	0.03 grain/dscf *
busbar welding	BW1-BW4	0.03 grain/dscf *
Frame end welding	FEW1-FEW4	0.03 grain/dscf *
Lime duct injection operation	LDI1	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

D.5.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.5.3 Particulate Control

(a) In order to assure compliance with Condition D.5.1, the bag filters for particulate control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit Description	Unit ID	Control
Anode slitter	AS1	ASBF1- ASBF4
Anode slitter	AS2	ASBF5- ASBF8
Anode slitter	AS3	ASBF9-ASBF12
Anode slitter	AS4	ASBF13- ASBF16
Cathode slitter	CS1	CSBF1- CSBF4
Cathode slitter	CS2	CSBF5- CSBF8
Cathode slitter	CS3	CSBF9- CSBF12
Cathode slitter	CS4	CSBF13- CSBF16
stackers	S1_1 to S1_32	S1_BF1 to S1_BF32
stackers	S2_1 to S2_32	S2_BF1 to S2_BF32
stackers	S3_1 to S3_25	S3_BF1 to S3_BF25
stackers	S4_1 to S4_25	S4_BF1 to S4_BF25
LPW welding	LPW1-1 to LPW1-2	LPWBF1 to LPWBF2
LPW welding	LPW2-1 to LPW2-2	LPWBF3 to LPWBF4
LPW welding	LPW3-1 to LPW3-2	LPWBF5 to LPWBF6
LPW welding	LPW4-1 to LPW4-2	LPWBF7 to LPWBF8
CanCap welding	CanCap1-1 to CANCAP1-2	CANCAPBF1 to CANCAPBF2
CanCap welding	CANCAP2-1 to CANCAP2-2	CANCAPBF3 to CANCAPBF4
CanCap welding	CANCAP3-1 to CANCAP3-2	CANCAPBF5 to CANCAPBF6
CanCap welding	CANCAP4-1 to CANCAP4-2	CANCAPBF7 to CANCAPBF8
taping machine	TM-1	TMBF1-TMBF4
taping machine	TM-2	TMBF5-TMBF8
taping machine	TM-3	TMBF9-TMBF12
taping machine	TM-4	TMBF13-TMBF16
taping machine	TM-5	TMBF17-TMBF20
taping machine	TM-6	TMBF21-TMBF24
taping machine	TM-7	TMBF25-TMBF28
taping machine	TM-8	TMBF29-TMBF32
seal pin welding	SPW1-1 to SPW1-2	SPWBF1

Unit Description	Unit ID	Control
seal pin welding	SPW2-1 to SPW2-2	SPWBF2
seal pin welding	SPW3-1 to SPW3-2	SPWBF3
seal pin welding	SPW4-1 to SPW4-2	SPWBF4
frame side welding	FSW1	MBF1
busbar welding	BW1	MBF2
frame side welding	FSW2	MBF3
busbar welding	BW2	MBF4
frame side welding	FSW3	MBF5
busbar welding	BW3	MBF6
frame side welding	FSW4	MBF7
busbar welding	BW4	MBF8
Frame end Welding	FEW1	MBF9
Frame end Welding	FEW2	MBF10
Frame end Welding	FEW3	MBF11
Frame end Welding	FEW4	MBF12

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

Insignificant activities

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating1 to W-Heating3, approved in 2023 for construction and approved for modification in 2024, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating01 through S-Heating-60, approved in 2023 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump1, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Twenty-six (26) cooling towers, identified as CWT01-CWT26, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 4,615 gal/min each, using no control, and exhausting to the atmosphere.

(f) Maintenance welding, gas metal arc welding (GMAW), 5,000 lbs of carbon steel electrode per year, uncontrolled, and exhausting to the indoors.

(g) Maintenance painting, using aerosol cans, with a maximum usage of five (5) 12oz cans per week uncontrolled, and exhausting to the indoors.

(i) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using a low NOx burner for NOx control and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.6.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

(a) Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Natural Gas-Fired Emergency Generators	Emgen01-Emgen10	0.03 grain/dscf *
Natural Gas-Fired Hot Water Heater	W-Heating1 to W-Heating3	0.03 grain/dscf *
Natural gas-fired space heaters	S-Heating01 to S-Heating-60	0.03 grain/dscf *
Diesel Fire Pump	F-pump1	0.03 grain/dscf *
Cooling towers	CWT01-CWT26	0.03 grain/dscf *
Maintenance welding	Maintenance welding	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

(b) Pursuant to 326 IAC 6.5-1-2(b)(3), the particulate matter emissions from each natural gas-fired boiler (Boiler1 and Boiler2) shall not exceed 0.01 grains per dry standard cubic foot when combusting natural gas.

D.6.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

SECTION D.7 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 5, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 15-18	1,057	105	918,079	2024*	Bag filter CBF42	02-PEF-03-05
Four (4) HD Mixer Tanks	HD 15-18	634			2024*	Bag filter CBF29	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 9-10	792			2024*	Bag filter CBF35	02-PEF-03-05
One (1) Binder Booth	Binder booth 5	528			2024*	Bag filter CBF40	02-PEF-03-05
Four (4) Cathode Silos	Cathode silo 15-18	1,057			2024*	Bag filter CBF34	02-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 15-18	528			2024*	Bag filter CBF34	02-PEF-03-05
Two (2) Binder Mixers tanks	Binder Mixer 9-10	528			2024*	Bag filter CBF28	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 15-18	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Emf Buffer Tank	EMFBT 15-18	528			2024*		
Seven (7) Storage Tanks	ST 29-35	528			2024*		
One (1) Coater Buffer Tank	CBT 5	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 6, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 19-21	1057	105	918,079	2024*	Bag filter CBF44	02-PEF-03-05
Three (3) HD Mixer Tanks	HD 19-21	634			2024*	Bag filter CBF30	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 11-12	792			2024*	Bag filter CBF37	02-PEF-03-05
One (1) Binder Booth	Binder Booth 6	528			2024*	Bag filter CBF45	02-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 19-21	1057			2024*	Bag filter CBF36	02-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 19-21	528			2024*	Bag filter CBF36	02-PEF-03-05
Two (2) Binder Mixers	Binder Mixer 11-12	528			2024*	Bag filter CBF28	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Binder Storage Tanks	BST 21-24	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	
Three (3) Emf Buffer Tank	EMFBT 19-21	528			2024*		
Seven (7) Storage Tanks	ST 36-42	528			2024*		
One (1) Coater Buffer Tank	CBT 6	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 7, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 22-25	1057	105	918,079	2024*	Bag filter CBF46	02-PEF-03-05
Four (4) HD Mixer Tanks	HD 22-25	634			2024*	Bag filter CBF32	02-PEF-03-05

						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 13-14	792			2024*	Bag filter CBF39	02-PEF-03-05
One (1) Binder Booth	Binder booth 7	528			2024*	Bag filter CBF47	02-PEF-03-05
Four (4) Cathode Silos	Cathode silo 22-25	1057			2024*	Bag filter CBF38	02-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 22-25	528			2024*	Bag filter CBF38	02-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 13-14	528			2024*	Bag filter CBF31	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 25-28	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Emf Buffer Tank	EMFBT 22-25	528			2024*		
Seven (7) Storage Tanks	ST 43-49	528			2024*		
One (1) Coater Buffer Tank	CBT 7	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 8, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 26-28	1057	105	918,079	2024*	Bag filter CBF48	02-PEF-03-05
Three (3) HD Mixer Tanks	HD 26-28	634			2024*	Bag filter CBF33	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 15-16	792			2024*	Bag filter CBF41	02-PEF-03-05
One (1) Binder Booth	Binder Booth 8	528			2024*	Bag filter CBF49	02-PEF-03-05

Three (3) Cathode Silos	Cathode Silo 26-28	1057			2024*	Bag filter CBF43	02-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 26-28	528			2024*	Bag filter CBF43	02-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 15-16	528			2024*	Bag filter CBF31	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 29-32	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Three (3) Emf Buffer Tank	EMFBT 26-28	528			2024*		
Seven (7) Storage Tanks	ST 50-56	528			2024*		
One (1) Coater Buffer Tank	CBT 8	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction, using Activated Carbon Towers (CAT-10a, CAT-10b, CAT-10c, CAT-10d, & CAT-10e Standby) for VOC/HAP control, exhausting to stack (S-10a, S-10b, S-10c, S-10d, and 10-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as Tanks NMPST 5 and NMPST 6; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 7 and NMPST 8.

Under 40 CFR 63, Subpart CCCCCCC, the NMP Storage Tanks associated with the cathode raw material handling and mixing line is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.7.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	PM Limit (lbs/hour)	PM10 Limit (lbs/hour)	PM2.5 Limit (lbs/hour)
Cline5 to Cline8	02-PEF-03, 02-PEF-04 and 02-PEF-05	5.46	5.46	5.46

*** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.

Compliance with these limits, combined with the potential to emit PM, PM_{10}, and $PM_{2.5}$ from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM_{10}, and $PM_{2.5}$ to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.7.2 Hazardous Air Pollutant (HAP) Minor Limits [40 CFR 63]

In order to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA), the Permittee shall comply with the following:

(a) The Nickel and Cobalt emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	Nickel Limit* (lbs/hour)	Cobalt Limit** (lbs/hour)
Cline5 to Cline8	02-PEF-03, 02-PEF-04 and 02-PEF-05	1.13	0.59

* Nickel refers to Nickel and Nickel compounds
** Cobalt refers to Cobalt and Cobalt compounds
*** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.

Compliance with these limits, combined with the potential to emit HAP from all other emission units at the source, shall limit the source-wide potential to emit single HAP to less than 10 tons per twelve (12) consecutive month period and the source-wide potential to emit total HAPs to less than 25 tons per twelve (12) consecutive month period, and shall render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

D.7.3 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Cathode Inlet Tanks	Cathode Inlet 15 - Cathode Inlet 28	0.03 grain/dscf *
HD Tanks	HD 15- HD 28	0.03 grain/dscf *
Binder Silos	Binder Silo9- Binder Silo16	0.03 grain/dscf *
Binder Booth	Binder booth 5- Binder booth 8	0.03 grain/dscf *
Cathode Silos	Cathode silo 15- Cathode silo 28	0.03 grain/dscf *
Cathode Mixer Hoppers	CMH 15- CMH 28	0.03 grain/dscf *
Binder Mixes	Binder Mixer 9- Binder Mixer 16	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

D.7.4 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.7.5 Particulate and HAP Control

(a) In order to assure compliance with Conditions D.7.1, D.7.2, and D.7.3, the bag filters for particulate and HAP control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit/Process Name	Unit ID	Bag Filter ID
Cathode Inlet Tanks	Cathode Inlet 15 - Cathode Inlet 18	CBF42
	Cathode Inlet 19 - Cathode Inlet 21	CBF44

Unit/Process Name	Unit ID	Bag Filter ID
	Cathode Inlet 22 - Cathode Inlet 25	CBF46
	Cathode Inlet 26 - Cathode Inlet 28	CBF48
HD Tanks	HD 15 - HD 18	CBF29
	HD 19 - HD 21	CBF30
	HD 22 - HD 25	CBF32
	HD 26 - HD 28	CBF33
Binder Silos	Binder Silo9 - Binder Silo10	CBF35
	Binder Silo11 - Binder Silo12	CBF37
	Binder Silo13 - Binder Silo14	CBF39
	Binder Silo15 - Binder Silo16	CBF41
Binder Booth	Binder Booth 5	CBF40
	Binder Booth 6	CBF45
	Binder Booth 7	CBF47
	Binder Booth 8	CBF49
Cathode Silos	Cathode silo 15 - Cathode silo 18	CBF34
	Cathode silo 19 - Cathode silo 21	CBF36
	Cathode silo 22 - Cathode silo 25	CBF38
	Cathode silo 26 - Cathode silo 28	CBF43
Cathode Mixer Hoppers	CMH 15 - CMH 18	CBF34
	CMH 19 - CMH 21	CBF36
	CMH 22 - CMH 25	CBF38
	CMH 26 - CMH 28	CBF43
Binder Mixes	Binder Mixer 9 - Binder Mixer 10	CBF28
	Binder Mixer 11 - Binder Mixer 12	
	Binder Mixer 13 - Binder Mixer 14	CBF31
	Binder Mixer 15 - Binder Mixer 16	

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.7.6 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.7.1 and D.7.2, not later than 180 days after startup of the emission units and associated controls associated with CLine5-CLine8, the Permittee shall perform PM, PM_{10}, $PM_{2.5}$, Nickel, and Cobalt testing on the stacks identified as "02-PEF-03, 02-PEF-04 and 02-PEF-05 " simultaneously utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

(b) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.7.7 Parametric Monitoring - Bag Filters

The Permittee shall record the pressure drop across the bag filters listed in the table below at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a bag filter is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances

contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

Bag Filter ID				
CBF28	CBF33	CBF38	CBF43	CBF48
CBF29	CBF34	CBF39	CBF44	CBF49
CBF30	CBF35	CBF40	CBF45	
CBF31	CBF36	CBF41	CBF46	
CBF32	CBF37	CBF42	CBF47	

The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.7.8 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.7.9 Record Keeping Requirement

(a) To document the compliance status with Condition D.7.7, the Permittee shall maintain daily records of the pressure drop for each bag filter. The Permittee shall include in its daily record when a pressure drop is not taken and the reason for the lack of a pressure drop record (e.g., the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

SECTION D.8 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

(f) One (1) Anode raw material handling and mixing line, identified as Aline5, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks ***
Three (3) PD Mixers	PDM 25-27	608	125	1,091,590	2024 *	Bag filter ABF29	02-PEF-01-02
Three (3) PD Mixers	PDM 28-30	608			2024 *	Bag filter ABF30	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 13-15	528			2024 *	Bag filter ABF28	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 5	792			2024 *	Bag filter ABF47	02-PEF-01-02
One (1) CMC Booth	CMC Booth 5	792			2024 *	Bag filter ABF47	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 9-10	792			2024 *	Bag filter ABF39	02-PEF-01-02
One (1) CMC Silo	CMC Silo 5	792			2024 *	Bag filter ABF 39	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 17--20	1057			2024 *	Bag filter ABF46	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 17-20	1057			2024 *	Bag filter ABF38	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 25-30	528			2024 *	Bag filter ABF38	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 25-30	528			2024 *	NA	Indoor
One (1) Electric Hot water Tank	HWT 5	792			2024 *		
Twelve (12) (PD slurry) Storage Tanks	PDST 49-60	528			2024 *		
Two (2) Coater Buffer Tanks	CBT 9-10	528			2024 *		

* Year approved for construction

** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(g) One (1) Anode raw material handling and mixing line, identified as Aline6, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 31-33	608	125	1,091,590	2024*	Bag filter ABF31	02-PEF-01-02
Three (3) PD Mixers	PDM 34-36	608			2024*	Bag filter ABF32	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 16-18	528			2024*	Bag filter ABF28	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 6	792			2024*	Bag filter ABF49	02-PEF-01-02
One (1) CMC Booth	CMC Booth 6	792			2024*	Bag filter ABF49	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 11-12	792			2024*	Bag filter ABF41	02-PEF-01-02
One (1) CMC Silo	CMC Silo 6	792			2024*	Bag filter ABF 41	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 21-24	1057			2024*	Bag filter ABF48	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 21-24	1057			2024*	Bag filter ABF40	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 31-36	528			2024*	Bag filter ABF40	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 31-36	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 6	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 61-72	528			2024*		
Two (2) Coater Buffer Tanks	CBT 11-12	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(h) One (1) Anode raw material handling and mixing line, identified as ALine 7, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 37-39	608	125	1,091,590	2024*	Bag filter ABF34	02-PEF-01-02
Three (3) PD Mixers	PDM 40-42	608			2024*	Bag filter ABF35	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 19-21	528			2024*	Bag filter ABF33	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 7	792			2024*	Bag filter ABF51	02-PEF-01-02
One (1) CMC Booth	CMC Booth 7	792			2024*	Bag filter ABF51	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 13-14	792			2024*	Bag filter ABF43	02-PEF-01-02
One (1) CMC Silo	CMC Silo 7	792			2024*	Bag filter ABF43	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 25-28	1057			2024*	Bag filter ABF50	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 25-28	1057			2024*	Bag filter ABF42	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 37-42	528			2024*	Bag filter ABF42	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 37-42	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 7	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 73-84	528			2024*		
Two (2) Coater Buffer Tanks	CBT 13-14	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(I) One (1) Anode raw material handling and mixing line, identified as ALine 8, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 43-45	608	125	1,091,590	2024*	Bag filter ABF36	02-PEF-01-02
Three (3) PD Mixers	PDM 46-48	608			2024*	Bag filter ABF37	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 22-24	528			2024*	Bag filter ABF33	02-PEF-01-02

One (1) Anode Conductive Powder Booth	ACPB 8	608			2024 *	Bag filter ABF53	02-PEF-01-02
One (1) CMC Booth	CMC Booth 8	608			2024 *	Bag filter ABF53	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 15-16	528			2024 *	Bag filter ABF45	02-PEF-01-02
One (1) CMC Silo	CMC Silo 8	608			2024 *	Bag filter ABF 45	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 29-32	608			2024 *	Bag filter ABF52	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 29-32	528			2024 *	Bag filter ABF44	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 43-48	528			2024 *	Bag filter ABF44	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 43-48	528			2024 *	NA	Indoor
One (1) Electric Hot water Tank	HWT 8	792			2024 *		
Twelve (12) (PD slurry) Storage Tanks	PDST 85-96	528			2024 *		
Two (2) Coater Buffer Tanks	CBT 15-16	528			2024 *		

* Year approved for construction
** Per individual unit
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02
(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.8.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	PM Limit (lbs/hour)	PM10 Limit (lbs/hour)	PM2.5 Limit (lbs/hour)
Aline5 to Aline8	02-PEF-01 and 02-PEF-02	8.75	8.75	8.75

*** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.

Compliance with these limits, combined with the potential to emit PM, PM_{10}, and $PM_{2.5}$ from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM_{10}, and $PM_{2.5}$ to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.8.2 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
PD Mixers	PDM 25- PDM 48	0.03 grain/dscf *
CMC Mixers	CMC Mixer 13- CMC Mixer 24	0.03 grain/dscf *
Anode Conductive Powder Booth	ACPB 5- ACPB 8	0.03 grain/dscf *
CMC Booth	CMC Booth 5- CMC Booth 8	0.03 grain/dscf *
Anode Conductive Powder Silos	ACPS 9- ACPS 16	0.03 grain/dscf *
CMC Silo	CMC Silo 5- CMC Silo 8	0.03 grain/dscf *
Anode Inlets	Anode Inlet 17- Anode Inlet 32	0.03 grain/dscf *
Anode Silos	Anode Silo 17- Anode Silo 32	0.03 grain/dscf *
Anode Mixer Hoppers	AMH25-AMH48	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

D.8.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.8.4 Particulate Control

(a) In order to assure compliance with Conditions D.8.1, and D.8.2, the bag filters for particulate control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit/Process Name	Unit ID	Bag Filter ID
PD Mixers	PDM 25 - PDM 27	ABF29
	PDM 28 - PDM 30	ABF30
	PDM 31 - PDM 33	ABF31
	PDM 34 - PDM 36	ABF32
	PDM 37 - PDM 39	ABF34
	PDM 40 - PDM 42	ABF35
	PDM 43 - PDM 45	ABF36
	PDM 46 - PDM 48	ABF37
CMC Mixers	CMC Mixer 13 - CMC Mixer 15	ABF28
	CMC Mixer 16 - CMC Mixer 18	
	CMC Mixer 19 - CMC Mixer 21	ABF33
	CMC Mixer 22 - CMC Mixer 24	
Anode Conductive Powder Booth	ACPB 5	ABF47
	ACPB 6	ABF49
	ACPB 7	ABF51
	ACPB 8	ABF53
CMC Booth	CMC Booth 5	ABF47
	CMC Booth 6	ABF49
	CMC Booth 7	ABF51
	CMC Booth 8	ABF53
Anode Conductive Powder Silos	ACPS 9-10	ABF39
	ACPS 11-12	ABF41
	ACPS 13-14	ABF43
	ACPS 15-16	ABF45
CMC Silo	CMC Silo 5	ABF39

Unit/Process Name	Unit ID	Bag Filter ID
	CMC Silo 6	ABF41
	CMC Silo 7	ABF43
	CMC Silo 8	ABF45
Anode Inlets	Anode Inlet 17-20	ABF46
	Anode Inlet 21-24	ABF48
	Anode Inlet 25-28	ABF50
	Anode Inlet 29-32	ABF52
Anode Silos	Anode Silo 17-20	ABF38
	Anode Silo 21-24	ABF40
	Anode Silo 25-28	ABF42
	Anode Silo 29-32	ABF44
Anode Mixer Hoppers	AMH 25-30	ABF38
	AMH 31-36	ABF40
	AMH 37-42	ABF42
	AMH 43-48	ABF44

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.8.5 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.8.1, not later than 180 days after startup of the emission units and associated controls associated with ALine5 to ALine8, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$, testing of the stacks identified as "02-PEF-01 and 02-PEF-02" simultaneously utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

(b) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.8.6 Parametric Monitoring - Bag Filters

The Permittee shall record the pressure drop across the bag filters listed in the table below at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a bag filter is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

Bag Filter ID						
ABF28	ABF32	ABF36	ABF40	ABF44	ABF48	ABF52
ABF29	ABF33	ABF37	ABF41	ABF45	ABF49	ABF53
ABF30	ABF34	ABF38	ABF42	ABF46	ABF50	
ABF31	ABF35	ABF39	ABF43	ABF47	ABF51	

The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.8.7 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.8.8 Record Keeping Requirement

(a) To document the compliance status with Condition D.8.6, the Permittee shall maintain daily records of the pressure drop for each bag filter. The Permittee shall include in its daily record when a pressure drop is not taken and the reason for the lack of a pressure drop record (e.g., the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

SECTION D.9 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

(j) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat5, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-05, exhausting to stack SR-05.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat6, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-06, exhausting to stack SR-06.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat7, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-07, exhausting to stack SR-07.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat8, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-08, exhausting to stack SR-08.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.9.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The controlled VOC emissions from each coating line C-coat5, C-coat6, C-coat7 and C-coat8, shall be less than 4.66 lb/hr, each.

Compliance with these limits, combined with the potential to emit VOC from all other emission units at this source, shall limit the source-wide total potential to emit of VOC to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.9.2 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the Permittee shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from each of the four coating lines, identified as C-coat5, C-coat6, C-coat7 and C-coat8.

D.9.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.9.4 VOC Control

In order to ensure compliance with Conditions D.9.1 and D.9.2, the integral Solvent Recovery towers, identified as SRT-05 to SRT-08, shall be in operation and control emissions from each coating line, identified as C-coat5, C-coat6, C-coat7 and C-coat8 at all times when the coating lines are in operation.

D.9.5 Testing Requirements [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.9.1 and D.9.2, not later than 180 days after startup of the coating line, identified as C-coat5, C-coat6, C-coat7 and C-coat8, the Permittee shall perform VOC testing (including emission rate, overall destruction efficiency, and overall capture efficiency) on one (1) of the associated integral Solvent recovery tower (SRT-05 or SRT-06 or SRT-07 or SRT-08) with testing alternated between SRT05, SRT06, SRT-07 and SRT08 utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall alternate between SRT05, SRT06, SRT-07 and SRT08 for each test cycle, such that testing on a Solvent Recovery tower shall not be repeated until SRT05, SRT06, SRT-07 and SRT08 have each been tested.

Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

D.9.6 Volatile Organic Compounds (VOC) [326 IAC 8-1-2]

(a) Pursuant to 326 IAC 8-1-2(b), the VOC emissions shall be limited to no greater than the equivalent emissions, expressed as pounds of VOC per gallon of coating solids, allowed under the applicable emission limitation contained in D.9.2. Equivalency shall be determined by the following equation:

E = L / (1 - (L/D))

Where:

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied
L = Applicable emission limit in pounds of VOC per gallon of coating. 2.6 pounds of VOC per gallon less water

D = Baseline solvent density of VOC in coating and shall be equal to 7.36 pounds per gallon of solvent;

A solvent density of 7.36 pounds of VOC per gallon of coating shall be used to determine equivalent pounds of VOC per gallon of solids for the applicable emission limit contained in this article.

(b) The pounds of VOC per gallon of coating solids shall be limited to less than 4.02 pounds per gallon of solids.

(c) Pursuant to 326 IAC 8-1-2(c), the overall efficiency of the capture system and control device shall be no less than the equivalent calculated by the following equation:

O = (V - E) / V * 100

Where:

O = Equivalent overall efficiency of the capture system and control device as a percentage.

V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied.

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied (4.02 pounds of VOC per gallon of solids).

The overall efficiency of the integral Solvent recovery tower (SRT05 -SRT08) shall be greater than 95.0%.

D.9.7 Volatile Organic Compounds (VOC)[326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Conditions D.9.1 and D.9.2 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the “as supplied” and “as applied” VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.9.8 Solvent Recovery Tower Monitoring

(a) In order to ensure compliance with Conditions D.9.1 and D.9.2, a continuous monitoring system shall be calibrated, maintained, and operated on each of the integral Solvent Recovery Towers, SRT05-SRT08, for measuring coolant exit temperature. For purposes of this condition continuous shall mean temperature measurement no less often than once per fifteen (15) minutes. The output of this system shall be recorded as a three (3) hour average. The integral Solvent Recovery Towers, (SRT05-SRT08) shall be operated at the 3-hour average temperature which shall be recommended by the manufacturer.

(b) On and after the date the stack test results are available, the Permittee shall ensure that coolant exit temperatures of the integral Solvent Recovery Towers shall be at or below the coolant exit temperatures as observed during the latest complaint stack test. The minimum specified temperature is the three (3) hour average temperature

(c) In order to ensure compliance with Conditions D.9.1 and D.9.2, a continuous monitoring system shall be calibrated, maintained, and operated on each of the integral Solvent Recovery Towers, SRT05-SRT08, for measuring water flow rate. For purposes of this condition continuous shall mean water flow rate measurement no less often than once per fifteen (15) minutes. The output of this system shall be recorded as a three (3) hour average. The integral Solvent Recovery Tower, (SRT05-SRT08) shall be operated at the 3-hour average water flow rate which shall be recommended by the manufacturer.

(d) The Permittee shall monitor and record the pressure drop across the fan for each integral Solvent Recovery Tower (SRT05-SRT08) at least once per day. The integral Solvent Recovery Tower, (SRT05-SRT08) shall be operated at a pressure drop across the fan which shall be recommended by the manufacturer.

If a condition exists which should result in a response, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response required by this condition. Failure to take a reasonable response shall be considered a deviation from this permit.

D.9.9 Solvent Recovery Tower Outlet Monitoring

(a) The Permittee shall monitor and record the outlet VOC concentration (ppm by volume as propane) of each of the integral Solvent Recovery Tower, (SRT05-SRT08) exhaust when any coating line, identified as C-coat5, C-coat6, C-coat7 and C-coat8 is in operation at least once per day.

(b) The Permittee shall operate the integral Solvent Recovery Tower, (SRT05-SRT08) at or below the average concentration as based on manufacturer specification.

(c) If the concentration rises above the above-mentioned average concentration, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

(d) The instruments used for determining outlet VOC concentration shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every week or as recommended by the manufacturer.

D.9.10 Solvent Recovery Tower Failure Detection

In the event that a Solvent recovery tower failure has been observed:

(a) For a Solvent recovery tower controlling emissions from a process operated continuously, a failed unit and the associated process will be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a Solvent recovery tower controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.9.11 Record Keeping Requirement

(a) In order to document the compliance status with Condition D.9.8(a) and D.9.8(b), the Permittee shall maintain continuous temperature records (on a 3-hour average basis) for the coolant exiting through each integral Solvent Recovery tower and the 3-hour average temperature used to demonstrate compliance during the most recent compliant stack test. The Permittee shall include in its records when the continuous temperature records were not taken and the reason for the lack of continuous temperature records (e.g. the process did not operate that day).

(b) To document the compliance status with Condition D.9.8(c), the Permittee shall maintain continuous records (on a 3-hour average basis) of the water flow rate at each integral Solvent Recovery Tower, (SRT05-SRT08). The Permittee shall include in its continuous records when a continuous water flow rate reading is not taken and the reason for the lack of continuous water flow rate reading (e.g., the process did not operate that day).

(c) To document the compliance status with Condition D.9.8(d), the Permittee shall maintain daily records of the record the pressure drop across the fan for each integral Solvent Recovery Tower, (SRT05-SRT08). The Permittee shall include in its daily records when a pressure reading is not taken and the reason for the lack of the pressure reading (e.g., the process did not operate that day)

(d) To document the compliance status with Condition D.9.9, the Permittee shall maintain records of the daily VOC monitoring for each integral Solvent Recovery Tower, (SRT05-SRT08). The Permittee shall include in its daily records when a outlet concentration reading is not taken and the reason for the lack of the outlet concentration reading (e.g., the process did not operate that day).

(e) Section C - General Record Keeping Requirements, contains the Permittee's obligations with regard to the records required by this condition.

SECTION D.10 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

(k) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat5, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat6, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat7, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat8, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.10.1 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the Permittee shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from each of the four coating lines, identified as A-coat5, A-coat6, A-coat7 and A-coat8.

D.10.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.10.3 Volatile Organic Compounds [326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Condition D.10.1 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the “as supplied” and “as applied” VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.10.4 Record Keeping Requirement

(a) To document the compliance status with Condition D.10.1, the Permittee shall maintain records in accordance with (1) through (2) below. Records maintained for (1) through (2) shall be taken as stated below and shall be complete and sufficient to establish compliance with the VOC usage limits established in Condition D.10.1.

(1) The VOC content of each coating material and solvent used less water.

(2) The amount of each coating material and solvent used on monthly basis.

(A) Records shall include purchase orders, invoices, and safety data sheets (SDS) necessary to verify the type and amount used.

(B) Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents.

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

SECTION D.11 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

(l) Anode slitting process, consisting of the following:

(1) One (1) Anode slitter, identified as AS5, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF17-ASBF20), and exhausting to stack (02-DCEF-1).

(2) One (1) Anode slitter, identified as AS6, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF21-ASBF24), and exhausting to stack (02-DCEF-1).

(3) One (1) Anode slitter, identified as AS7, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF25-ASBF28), and exhausting to stack (02-DCEF-1).

(4) One (1) Anode slitter, identified as AS8, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF29-ASBF32), and exhausting to stack (02-DCEF-1).

(m) Cathode slitting process, consisting of the following:

(1) One (1) Cathode slitter, identified as CS5, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF17-CSBF20), and exhausting to stack (02-DCEF-2).

(2) One (1) Cathode slitter, identified as CS6, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF21-CSBF24), and exhausting to stack (02-DCEF-2).

(3) One (1) Cathode slitter, identified as CS7, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF25-CSBF28), and exhausting to stack (02-DCEF-2).

(4) One (1) Cathode slitter, identified as CS8, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF29-CSBF32), and exhausting to stack (02-DCEF-2).

(n) One (1) Assembly process, consisting of the following:

(1) Four (4) Stacking Lines, consisting of the following:

Line 5

(A) Thirty-two (32) stackers, identified as S5_1 to S5_32, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S5_BF1 to S5_BF32) respectively, exhausting to stack (02-DCEF-3).

Line 6

(B) Thirty-two (32) stackers, identified as S6_1 to S6_32, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S4_BF1 to S4_BF32) respectively, exhausting to

stack (02-DCEF-4).

Line 7
(C) Twenty-five (25) stackers, identified as S7_1 to S7_25, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S7_BF1 to S7_BF25) respectively, exhausting to stack (02-DCEF-5).

Line 8
(D) Twenty-five (25) stackers, identified as S8_1 to S8_25, approved in 2023 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S8_BF1 to S8_BF25) respectively, exhausting to stack (02-DCEF-6).

(2) Four (4) LPW lines, consisting of the following:

Line 5
(A) Two (2) LPW welding, identified as LPW5-1 to LPW5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF9 to LPWBF10) respectively, exhausting to stack (02-DCEF-7)

Line 6
(B) Two (2) LPW welding, identified as LPW6-1 to LPW6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF11 to LPWBF12) respectively, exhausting to stack (02-DCEF-7)

Line 7
(C) Two (2) LPW welding, identified as LPW7-1 to LPW7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF13 to LPWBF14) respectively, exhausting to stack (02-DCEF-7)

Line 8
(D) Two (2) LPW welding, identified as LPW8-1 to LPW8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF15 to LPWBF16) respectively, exhausting to stack (02-DCEF-7)

(3) Four (4) CanCap Welding lines, consisting of the following:

Line 5
(A) Two (2) CanCap welding, identified as CanCap5-1 to CANCAP5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF9 to CANCAPBF10) respectively, exhausting to stack (02-DCEF-8).

Line 6
(B) Two (2) CanCap welding, identified as CANCAP6-1 to CANCAP6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF11 to CANCAPBF12) respectively, exhausting to stack (02-DCEF-8).

Line 7

(C) Two (2) CanCap welding, identified as CANCAP7-1 to CANCAP7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF13 to CANCAPBF14) respectively, exhausting to stack (02-DCEF-8).

Line 8
(D) Two (2) CanCap welding, identified as CANCAP8-1 to CANCAP8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF15 to CANCAPBF16) respectively, exhausting to stack (02-DCEF-8).

(4) Four (4) electrolyte filling processes, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, approved for construction in 2024, using Activated Carbon Towers (CAT-04a, CAT-04, CAT-04c, CAT-04d, & CAT-04e Standby) for VOC/HAP control, exhausting to stack (S-4a, S-4b, S-4c, S-4d, and S-4e Standby), consisting of the following:

Line 5
(A) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 6
(B) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 7
(C) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 8
(D) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

(5) One (1) General assembly operation, identified as GAO2, approved for construction in 2024, consisting of adhesive and gap filling operations.

(6) One (1) Lime duct injection operation , identified as LDI2, approved for construction in 2024, with a maximum capacity of 6 tons a year of lime

(o) One (1) formation process, identified as Formation, approved in 2024 for construction, using Activated Carbon Towers (CAT-11a, CAT-11b, CAT-11c, CAT-11d, & CAT-11e Standby) for VOC/HAP control, exhausting to stack (S-11a, S-11b, S-11c, S-11d, and S-11e Standby).

(1) One (1) taping process, with a combined maximum process capacity of 3,588 cells per hour, total, consisting of the following:

(A) One (1) taping machine, identified as TM-9, approved in 2024 for construction, controlled by bag filters (TMBF33-TMBF36), exhausting through general exhaust stack 03-EF-301-302.

(B) One (1) taping machine, identified as TM-10, approved in 2024 for construction, controlled by bag filters (TMBF37-TMBF40), exhausting through general exhaust stack 03-EF-301-302.

(C) One (1) taping machine, identified as TM-11, approved in 2023 for construction, controlled by bag filters (TMBF41-TMBF44), exhausting through general exhaust stack 03-EF-301-302.

(D) One (1) taping machine, identified as TM-12, approved in 2024 for construction, controlled by bag filters (TMBF45-TMBF48), exhausting through general exhaust stack 03-EF-301-302.

(E) One (1) taping machine, identified as TM-13, approved in 2024 for construction, controlled by bag filters (TMBF49-TMBF52), exhausting through general exhaust stack 03-EF-301-302.

(F) One (1) taping machine, identified as TM-14, approved in 2024 for construction, controlled by bag filters (TMBF53-TMBF56), exhausting through general exhaust stack 03-EF-301-302.

(G) One (1) taping machine, identified as TM-15, approved in 2024 for construction, controlled by bag filters (TMBF57-TMBF60), exhausting through general exhaust stack 03-EF-301-302.

(H) One (1) taping machine, identified as TM-16, approved in 2024 for construction, controlled by bag filters (TMBF61-TMBF64), exhausting through general exhaust stack 03-EF-301-302.

(2) Four (4) SealPin Welding lines, consisting of the following

Line 5

(A) Two (2) seal pin welding, identified as SPW5-1 to SPW5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (SPWBF5), exhausting through general exhaust stack 03-EF-301-302.

Line 6

(B) Two (2) seal pin welding, identified as SPW6-1 to SPW6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF6) respectively, exhausting through general exhaust stack 03-EF-301-302.

Line 7

(C) Two (2) seal pin welding, identified as SPW7-1 to SPW7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF7) respectively, exhausting through general exhaust stack 03-EF-301-302.

Line 8

(D) Two (2) seal pin welding, identified as SPW8-1 to SPW8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF8) respectively, exhausting to through general exhaust stack 03-EF-301-302.

(3) Four (4) HVC Front Side Moving Device, identified as HVC5-HVC8, approved in 2024 for construction, with a combined maximum capacity of 3,588 cells/hr, and Activated Carbon Towers (CAT-11a, CAT-11b, CAT-11c, CAT-11d, & CAT-11e Standby) for VOC/HAP control, exhausting to stack (S-11a, S-11b, S-11c, S-11d, and S-11e Standby

(p) One (1) module process, identified as Module, approved in 2024 for construction, and consisting of the following:

Line 5

(1) One (1) frame side welding, identified as FSW5, approved in 2024 for construction, with a maximum capacity of 897cells/hr, total, and controlled by a bag filter (MBF13), exhausting through general exhaust stack 03-EF-301-302.

(2) One (1) busbar welding, identified as BW5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MB14), exhausting through general exhaust stack 03-EF-301-302.

(3) One (1) side dispenser, identified as SD5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA9-PSA10, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(6) Two (2) curing stations, identified as CS9-CS10, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(7) One (1) Frame end welding, identified as FEW5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF21), exhausting through general exhaust stack 03-EF-301-302

Line 6

(8) One (1) frame side welding, identified as FSW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF15), exhausting through general exhaust stack 03-EF-301-302.

(9) One (1) busbar welding, identified as BW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF16), exhausting through general exhaust stack 03-EF-301-302.

(10) One (1) side dispenser, identified as SD6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(11) One (1) HBB dispenser, identified as HBB6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(12) Two (2) PSA dispensers, identified as PSA11-PSA12, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(13) Two (2) curing stations, identified as CS11-CS12, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(14) One (1) Frame end welding, identified as FEW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF22), exhausting through general exhaust stack 03-EF-301-302.

Line 7

(15) One (1) frame side welding, identified as FSW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF17), exhausting through general exhaust stack 03-EF-301-302.

(16) One (1) busbar welding, identified as BW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF18), exhausting through general exhaust stack 03-EF-301-302.

(17) One (1) side dispenser, identified as SD7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(18) One (1) HBB dispenser, identified as HBB7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(19) Two (2) PSA dispensers, identified as PSA13-PSA14, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(20) Two (2) curing stations, identified as CS13-CS14, approved in 20243 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(21) One (1) Frame end welding, identified as FEW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF23), exhausting through general exhaust stack 03-EF-301-302.

Line 8

(22) One (1) frame side welding, identified as FSW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF19), exhausting through general exhaust stack 03-EF-301-302.

(23) One (1) busbar welding, identified as BW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF20), exhausting through general exhaust stack 03-EF-301-302.

(24) One (1) side dispenser, identified as SD8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(25) One (1) HBB dispenser, identified as HBB8, approved in 2023 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(26) Two (2) PSA dispensers, identified as PSA15-PSA16, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(27) Two (2) curing stations, identified as CS13-CS14, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(28) One (1) Frame end welding, identified as FEW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF24), exhausting through general exhaust stack 03-EF-301-302.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.11.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Anode Slitters	AS5-AS8	0.03 grain/dscf *
Cathode Slitters	CS5-CS8	0.03 grain/dscf *
Stackers	S5_1 to S5_32	0.03 grain/dscf *
	S6_1 to S6_32	
	S7_1 to S7_25	
	S8_1 to S8_25	
LPW welding	LPW5-1 to LPW5-2	0.03 grain/dscf *
	LPW6-1 to LPW6-2	
	LPW7-1 to LPW7-2	
	LPW8-1 to LPW8-2	
CanCap welding	CanCap5-1 to CanCap5-2	0.03 grain/dscf *
	CanCap6-1 to CanCap6-2	
	CanCap7-1 to CanCap7-2	
	CanCap8-1 to CanCap8-2	
seal pin welding	SPW5-1 to SPW5-2	0.03 grain/dscf *
	SPW6-1 to SPW6-2	
	SPW7-1 to SPW7-2	0.03 grain/dscf *
	SPW8-1 to SPW8-2	0.03 grain/dscf *
Taping machines	TM9-TM16	0.03 grain/dscf *
frame side welding	FSW5-FSW8	0.03 grain/dscf *
busbar welding	BW5-BW8	0.03 grain/dscf *
Frame end welding	FEW5-8	0.03 grain/dscf *
Lime duct injection operation	LDI2	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

D.11.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.11.3 Particulate Control

(a) In order to assure compliance with Condition D.11.1, the bag filters for particulate control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit Description	Unit ID	Control
Anode slitter	AS5	ASBF17- ASBF20
Anode slitter	AS6	ASBF21- ASBF24
Anode slitter	AS7	ASBF25-ASBF28
Anode slitter	AS8	ASBF29- ASBF32
Cathode slitter	CS5	CSBF17- CSBF20

Unit Description	Unit ID	Control
Cathode slitter	CS6	CSBF21- CSBF24
Cathode slitter	CS7	CSBF25- CSBF28
Cathode slitter	CS8	CSBF29- CSBF32
stackers	S5_1 to S5_32	S5_BF1 to S5_BF32
stackers	S6_1 to S6_32	S6_BF1 to S6_BF32
stackers	S7_1 to S7_25	S7_BF1 to S7_BF25
stackers	S8_1 to S8_25	S8_BF1 to S8_BF25
LPW welding	LPW5-1 to LPW5-2	LPWBF9 to LPWBF10
LPW welding	LPW6-1 to LPW6-2	LPWBF11 to LPWBF12
LPW welding	LPW7-1 to LPW7-2	LPWBF13 to LPWBF14
LPW welding	LPW8-1 to LPW8-2	LPWBF15 to LPWBF16
CanCap welding	CANCAP5-1 to CANCAP5-2	CANCAPBF9 to CANCAPBF10
CanCap welding	CANCAP6-1 to CANCAP6-2	CANCAPBF11 to CANCAPBF12
CanCap welding	CANCAP7-1 to CANCAP7-2	CANCAPBF13 to CANCAPBF14
CanCap welding	CANCAP8-1 to CANCAP8-2	CANCAPBF15 to CANCAPBF16
taping machine	TM-9	TMBF33-TMBF36
taping machine	TM-10	TMBF37-TMBF40
taping machine	TM-11	TMBF41-TMBF44
taping machine	TM-12	TMBF45-TMBF48
taping machine	TM-13	TMBF49-TMBF52
taping machine	TM-14	TMBF53-TMBF56
taping machine	TM-15	TMBF57-TMBF60
taping machine	TM-16	TMBF61-TMBF64
seal pin welding	SPW5-1 to SPW5-2	SPWBF5
seal pin welding	SPW6-1 to SPW6-2	SPWBF6
seal pin welding	SPW7-1 to SPW7-2	SPWBF7
seal pin welding	SPW8-1 to SPW8-2	SPWBF8
frame side welding	FSW5	MBF13
busbar welding	BW5	MBF14
frame side welding	FSW6	MBF15
busbar welding	BW6	MBF16
frame side welding	FSW7	MBF17
busbar welding	BW7	MBF18
frame side welding	FSW8	MBF19
busbar welding	BW8	MBF20
Frame end welding	FEW5	MBF21
Frame end welding	FEW6	MBF22
Frame end welding	FEW7	MBF23
Frame end welding	FEW8	MBF24

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

SECTION D.12 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

Insignificant activities

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating4 to W-Heating6, 2024 for construction, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating61 through S-Heating-120, approved in 2024 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Four (4) cooling towers, identified as CWT27-CWT30, approved in 2024 for construction, with a maximum capacity of 5,500 gal/min each, using no control, and exhausting to the atmosphere.

(f) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction with a maximum heat input capacity of 12.50 MMBTU/hr, each, using a low NOx burner for NOx control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.12.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

(a) Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Natural Gas-Fired Emergency Generators	Emgen11-Emgen20	0.03 grain/dscf *
Natural Gas-Fired Hot Water Heater	W-Heating4 to W-Heating6	0.03 grain/dscf *

Unit/Process Name	Unit ID	Limit
Natural gas-fired space heaters	S-Heating61 to S-Heating-120	0.03 grain/dscf *
Diesel Fire Pump	F-pump2	0.03 grain/dscf *
cooling towers	CWT27-CWT30	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

(b) Pursuant to 326 IAC 6.5-1-2(b)(3), the particulate matter emissions from each natural gas-fired boiler (Boiler3 and Boiler4) shall not exceed 0.01 grains per dry standard cubic foot when combusting natural gas.

D.12.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

SECTION E.1 NSPS

Emissions Unit Description:

Plant1:

(e) One (1) diesel fire pump, identified as F-pump1, approved in 2022 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

Plant2:

(e) One (1) diesel fire pump, identified as F-pump2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.1.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1][40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart IIII

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.1.2 Standards for Stationary Compression Ignition Internal Combustion Engines NSPS [326 IAC 12][40 CFR Part 60, Subpart IIII]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart IIII (included as Attachment A to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.4200(a)(2)(ii) and (c)
(2) 40 CFR 60.4202(d)
(3) 40 CFR 60.4205(c)
(4) 40 CFR 60.4206
(5) 40 CFR 60.4207(b)

(6) 40 CFR 60.4209(a)
(7) 40 CFR 60.4211(a), (c), (f)
(8) 40 CFR 60.4214(b)
(9) 40 CFR 60.4218
(10) 40 CFR 60.4219
(11) Table 3
(12) Table 4
(13) Table 5
(14) Table 8

SECTION E.2 NSPS

Emissions Unit Description:

Plant 1:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

Plant 2:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.2.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1][40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart JJJJ.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.2.2 Standards Of Performance For Stationary Spark Ignition Internal Combustion Engines NSPS [326 IAC 12][40 CFR Part 60, Subpart JJJJ]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart JJJJ (included as Attachment B to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.4230(a)(4)(iv), (a)(6), (c)
(2) 40 CFR 60.4233(c),(h)
(3) 40 CFR 60.4234
(4) 40 CFR 60.4236(c)
(5) 40 CFR 60.4237(a)

(6) 40 CFR 60.4243(a), (d), (e)
(7) 40 CFR 60.4244
(8) 40 CFR 60.4245(a)(1), (a)(2), (b), (e)
(9) 40 CFR 60.4246
(10) 40 CFR 60.4248
(11) Table 1
(12) Table 3

SECTION E.3 NESHAP

Plant 1:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(e) One (1) diesel fire pump, identified as F-pump1, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

Plant 2:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source

(e) One (1) diesel fire pump, identified as F-pump2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]

E.3.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1][40 CFR Part 63, Subpart A]

(a) Pursuant to 40 CFR 63.1 the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 20-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 63, Subpart ZZZZ

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.3.2 National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines NESHAP [40 CFR Part 63, Subpart ZZZZ

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart ZZZZ (included as Attachment C to the operating permit), for the emission unit(s) listed above:

(1) 40 CFR 63.6580
(2) 40 CFR 63.6585
(3) 40 CFR 63.6590(a)(2)(iii) and (c) (1)
(4) 40 CFR 63.6595(a)(7)
(5) 40 CFR 63.6665
(6) 40 CFR 63.6670
(7) 40 CFR 63.6675

SECTION E.4 NESHAP

Emissions Unit Description:

Note: Complete facility descriptions are in Section A.3

Plant1:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction, and consisting of the following:

..
Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction, and consisting of the following

..
Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction, and consisting of the following:

..
Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction, and consisting of the following:

..
Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby), including::

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as NMPST 1 and NMPST 2; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 3 and NMPST 4.

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

Plant 2:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 5, approved in 2024 for construction, and consisting of the following:

..
Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 6, approved in 2024 for

construction, and consisting of the following:

..

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 7, approved in 2024 for construction, and consisting of the following:

..

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 8, approved in 2024 for construction, and consisting of the following:

..

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction, using Activated Carbon Towers (CAT-10a, CAT-10b, CAT-10c, CAT-10d, & CAT-10e Standby) for VOC/HAP control, exhausting to stack (S-10a, S-10b, S-10c, S-10d, and 10-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as Tanks NMPST 5 and NMPST 6; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 7 and NMPST 8.

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]

E.4.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1][40 CFR Part 63, Subpart A]

(a) Pursuant to 40 CFR 63.1 the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 20-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 63, Subpart CCCCCCC.

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.4.2 National Emission Standards for Hazardous Air Pollutants for Manufacture of Paint and Allied Products NESHAP [40 CFR Part 63, Subpart CCCCCCC]

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart CCCCCCC (included as Attachment D to the operating permit), for the emission unit(s) listed above:

(1) 40 CFR 63.11599(a) & (b)
(2) 40 CFR 63.11600
(3) 40 CFR 63.11601
(4) 40 CFR 63.11602
(5) 40 CFR 63.11603(a), (b), (c)
(6) 40 CFR 63.11605
(7) 40 CFR 63.11606
(8) 40 CFR 63.11607
(9) Table 1

SECTION E.5 NSPS

Emissions Unit Description:

Insignificant activities

Plant 1:

(i) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using a low NOx burner for NOx control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

Plant 2:

(f) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction with a maximum heat input capacity of 12.50 MMBTU/hr, each, using a low NOx burner for NOx control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.5.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1][40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart Dc.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.5.2 Standards of Performance for Small Industrial-Commerical-Institutional Steam Generating Units NSPS [326 IAC 12][40 CFR Part 60, Subpart Dc]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart Dc (included as Attachment E to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.40c (a)
(2) 40 CFR 60.41c
(3) 40 CFR 60.48c (a)
(4) 40 CFR 60.48c (g)
(5) 40 CFR 60.48c (i)
(6) 40 CFR 60.48c (j)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
CERTIFICATION

Source Name: StarPlus Energy LLC
Source Address: 2724 N. 50 E., Kokomo, Indiana 46901
Part 70 Permit No.: 067-45648-00093

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.

Please check what document is being certified:

☐ Annual Compliance Certification Letter

☐ Test Result (specify) _____

☐ Report (specify) _____

☐ Notification (specify) _____

☐ Affidavit (specify) _____

☐ Other (specify) _____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
Signature:
Printed Name:
Title/Position:
Phone:
Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Phone: (317) 233-0178
Fax: (317) 233-6865

PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT

Source Name: StarPlus Energy LLC
Source Address: 2724 N. 50 E., Kokomo, Indiana 46901
Part 70 Permit No.: 067-45648-00093

This form consists of 2 pages **Page 1 of 2**

☐ This is an emergency as defined in 326 IAC 2-7-1(12)
- The Permittee must notify the Office of Air Quality (OAQ), within four (**4**) daytime business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and
- The Permittee must submit notice in writing or by facsimile within two (**2**) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A **Page 2 of 2**

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N
Type of Pollutants Emitted: TSP, PM-10, SO_2, VOC, NO_X, CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by: _____

Title / Position: _____

Date: _____

Phone:_____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: StarPlus Energy LLC
Source Address: 2724 N. 50 E., Kokomo, Indiana 46901
Part 70 Permit No.: 067-45648-00093

Months: _____ to _____ Year: _____

This report shall be submitted quarterly based on a calendar year. Proper notice submittal under Section B - Emergency Provisions satisfies the reporting requirements of paragraph (a) of Section C-General Reporting. Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".
□ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.
□ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed by:_____

Title / Position: _____

Date:_____

Phone: _____

Mail to: Permit Administration and Support Section
Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

StarPlus Energy LLC
2724 N. 50 E.
Kokomo, Indiana 46901

Affidavit of Construction

I, _____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.

2. I hold the position of _____ for _____.
(Title) (Company Name)

3. By virtue of my position with _____, I have personal
(Company Name)
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of _____.
(Company Name)

4. I hereby certify that StarPlus Energy LLC, 2724 N. 50 E., Kokomo, Indiana 46901, completed construction of the Lithium Ion battery manufacturing operation on _____ in conformity with the requirements and intent of the construction permit application received by the Office of Air Quality on July 28, 2022 and as permitted pursuant to New Source Construction Permit and Part 70 Operating Permit No. 067-45648-00093, Plant ID No. 67--00093 issued on _____.

5. **Permittee, please cross out the following statement if it does not apply:** Additional (operations/facilities) were constructed/substituted as described in the attachment to this document and were not made in accordance with the construction permit.

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature_____
Date_____

STATE OF INDIANA)
)SS
COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of Indiana on this _____ day of _____, 20_____. My Commission expires: _____.

Signature_____
Name_____ (typed or printed)

Attachment E

Part 70 Operating Permit No: 067-47628-00093

[Downloaded from the eCFR on May 13, 2013]

Electronic Code of Federal Regulations

Title 40: Protection of Environment

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Subpart Dc—Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

Source: 72 FR 32759, June 13, 2007, unless otherwise noted.

§ 60.40c Applicability and delegation of authority.

(a) Except as provided in paragraphs (d), (e), (f), and (g) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h).

(b) In delegating implementation and enforcement authority to a State under section 111(c) of the Clean Air Act, § 60.48c(a)(4) shall be retained by the Administrator and not transferred to a State.

(c) Steam generating units that meet the applicability requirements in paragraph (a) of this section are not subject to the sulfur dioxide (SO_2) or particulate matter (PM) emission limits, performance testing requirements, or monitoring requirements under this subpart (§§ 60.42c, 60.43c, 60.44c, 60.45c, 60.46c, or 60.47c) during periods of combustion research, as defined in § 60.41c.

(d) Any temporary change to an existing steam generating unit for the purpose of conducting combustion research is not considered a modification under § 60.14.

(e) Affected facilities (*i.e.* heat recovery steam generators and fuel heaters) that are associated with stationary combustion turbines and meet the applicability requirements of subpart KKKK of this part are not subject to this subpart. This subpart will continue to apply to all other heat recovery steam generators, fuel heaters, and other affected facilities that are capable of combusting more than or equal to 2.9 MW (10 MMBtu/h) heat input of fossil fuel but less than or equal to 29 MW (100 MMBtu/h) heat input of fossil fuel. If the heat recovery steam generator, fuel heater, or other affected facility is subject to this subpart, only emissions resulting from combustion of fuels in the steam generating unit are subject to this subpart. (The stationary combustion turbine emissions are subject to subpart GG or KKKK, as applicable, of this part.)

(f) Any affected facility that meets the applicability requirements of and is subject to subpart AAAA or subpart CCCC of this part is not subject to this subpart.

(g) Any facility that meets the applicability requirements and is subject to an EPA approved State or Federal section 111(d)/129 plan implementing subpart BBBB of this part is not subject to this subpart.

(h) Affected facilities that also meet the applicability requirements under subpart J or subpart Ja of this part are subject to the PM and NO_X standards under this subpart and the SO_2 standards under subpart J or subpart Ja of this part, as applicable.

(i) Temporary boilers are not subject to this subpart.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5090, Jan. 28, 2009; 77 FR 9461, Feb. 16, 2012]

§ 60.41c Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Clean Air Act and in subpart A of this part.

Annual capacity factor means the ratio between the actual heat input to a steam generating unit from an individual fuel or combination of fuels during a period of 12 consecutive calendar months and the potential heat input to the steam generating unit from all fuels had the steam generating unit been operated for 8,760 hours during that 12-month period at the maximum design heat input capacity. In the case of steam generating units that are rented or leased, the actual heat input shall be determined based on the combined heat input from all operations of the affected facility during a period of 12 consecutive calendar months.

Coal means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society of Testing and Materials in ASTM D388 (incorporated by reference, see § 60.17), coal refuse, and petroleum coke. Coal-derived synthetic fuels derived from coal for the purposes of creating useful heat, including but not limited to solvent refined coal, gasified coal not meeting the definition of natural gas, coal-oil mixtures, and coal-water mixtures, are also included in this definition for the purposes of this subpart.

Coal refuse means any by-product of coal mining or coal cleaning operations with an ash content greater than 50 percent (by weight) and a heating value less than 13,900 kilojoules per kilogram (kJ/kg) (6,000 Btu per pound (Btu/lb) on a dry basis.

Combined cycle system means a system in which a separate source (such as a stationary gas turbine, internal combustion engine, or kiln) provides exhaust gas to a steam generating unit.

Combustion research means the experimental firing of any fuel or combination of fuels in a steam generating unit for the purpose of conducting research and development of more efficient combustion or more effective prevention or control of air pollutant emissions from combustion, provided that, during these periods of research and development, the heat generated is not used for any purpose other than preheating combustion air for use by that steam generating unit (*i.e.* , the heat generated is released to the atmosphere without being used for space heating, process heating, driving pumps, preheating combustion air for other units, generating electricity, or any other purpose).

Conventional technology means wet flue gas desulfurization technology, dry flue gas desulfurization technology, atmospheric fluidized bed combustion technology, and oil hydrodesulfurization technology.

Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396 (incorporated by reference, see § 60.17), diesel fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D975 (incorporated by reference, see § 60.17), kerosine, as defined by the American Society of Testing and Materials in ASTM D3699 (incorporated by reference, see § 60.17), biodiesel as defined by the American Society of Testing and Materials in ASTM D6751 (incorporated by reference, see § 60.17), or biodiesel blends as defined by the American Society of Testing and Materials in ASTM D7467 (incorporated by reference, see § 60.17).

Dry flue gas desulfurization technology means a SO_2 control system that is located between the steam generating unit and the exhaust vent or stack, and that removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline reagent and water, whether introduced separately or as a premixed slurry or solution and forming a dry powder material. This definition includes devices where the dry powder material is subsequently converted to another form. Alkaline reagents used in dry flue gas desulfurization systems include, but are not limited to, lime and sodium compounds.

Duct burner means a device that combusts fuel and that is placed in the exhaust duct from another source (such as a stationary gas turbine, internal combustion engine, kiln, etc.) to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a steam generating unit.

Emerging technology means any SO_2 control system that is not defined as a conventional technology under this section, and for which the owner or operator of the affected facility has received approval from the Administrator to operate as an emerging technology under § 60.48c(a)(4).

Federally enforceable means all limitations and conditions that are enforceable by the Administrator, including the requirements of 40 CFR parts 60 and 61, requirements within any applicable State implementation plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.18 and 51.24.

Fluidized bed combustion technology means a device wherein fuel is distributed onto a bed (or series of beds) of limestone aggregate (or other sorbent materials) for combustion; and these materials are forced upward in the device by the flow of combustion air and the gaseous products of combustion. Fluidized bed combustion technology includes, but is not limited to, bubbling bed units and circulating bed units.

Fuel pretreatment means a process that removes a portion of the sulfur in a fuel before combustion of the fuel in a steam generating unit.

Heat input means heat derived from combustion of fuel in a steam generating unit and does not include the heat derived from preheated combustion air, recirculated flue gases, or exhaust gases from other sources (such as stationary gas turbines, internal combustion engines, and kilns).

Heat transfer medium means any material that is used to transfer heat from one point to another point.

Maximum design heat input capacity means the ability of a steam generating unit to combust a stated maximum amount of fuel (or combination of fuels) on a steady state basis as determined by the physical design and characteristics of the steam generating unit.

Natural gas means:

(1) A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or

(2) Liquefied petroleum (LP) gas, as defined by the American Society for Testing and Materials in ASTM D1835 (incorporated by reference, see § 60.17); or

(3) A mixture of hydrocarbons that maintains a gaseous state at ISO conditions. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 34 and 43 megajoules (MJ) per dry standard cubic meter (910 and 1,150 Btu per dry standard cubic foot).

Noncontinental area means the State of Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, or the Northern Mariana Islands.

Oil means crude oil or petroleum, or a liquid fuel derived from crude oil or petroleum, including distillate oil and residual oil.

Potential sulfur dioxide emission rate means the theoretical SO_2 emissions (nanograms per joule (ng/J) or lb/MMBtu heat input) that would result from combusting fuel in an uncleaned state and without using emission control systems.

Process heater means a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.

Residual oil means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6, as defined by the American Society for Testing and Materials in ASTM D396 (incorporated by reference, see § 60.17).

Steam generating unit means a device that combusts any fuel and produces steam or heats water or heats any heat transfer medium. This term includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters as defined in this subpart.

Steam generating unit operating day means a 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time in the steam generating unit. It is not necessary for fuel to be combusted continuously for the entire 24-hour period.

Temporary boiler means a steam generating unit that combusts natural gas or distillate oil with a potential SO_2 emissions rate no greater than 26 ng/J (0.060 lb/MMBtu), and the unit is designed to, and is capable of, being carried or moved from one location to another by means of, for example, wheels, skids, carrying handles, dollies, trailers, or platforms. A steam generating unit is not a temporary boiler if any one of the following conditions exists:

(1) The equipment is attached to a foundation.

(2) The steam generating unit or a replacement remains at a location for more than 180 consecutive days. Any temporary boiler that replaces a temporary boiler at a location and performs the same or similar function will be included in calculating the consecutive time period.

(3) The equipment is located at a seasonal facility and operates during the full annual operating period of the seasonal facility, remains at the facility for at least 2 years, and operates at that facility for at least 3 months each year.

(4) The equipment is moved from one location to another in an attempt to circumvent the residence time requirements of this definition.

Wet flue gas desulfurization technology means an SO_2 control system that is located between the steam generating unit and the exhaust vent or stack, and that removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline slurry or solution and forming a liquid material. This definition includes devices where the liquid material is subsequently converted to another form. Alkaline reagents used in wet flue gas desulfurization systems include, but are not limited to, lime, limestone, and sodium compounds.

Wet scrubber system means any emission control device that mixes an aqueous stream or slurry with the exhaust gases from a steam generating unit to control emissions of PM or SO_2 .

Wood means wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including but not limited to sawdust, sanderdust, wood chips, scraps, slabs, millings, shavings, and processed pellets made from wood or other forest residues.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5090, Jan. 28, 2009; 77 FR 9461, Feb. 16, 2012]

§ 60.42c Standard for sulfur dioxide (SO2).

(a) Except as provided in paragraphs (b), (c), and (e) of this section, on and after the date on which the performance test is completed or required to be completed under § 60.8, whichever date comes first, the owner or operator of an affected facility that combusts only coal shall neither: cause to be discharged into the atmosphere from the affected facility any gases that contain SO_2 in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 10 percent (0.10) of the potential SO_2 emission rate (90 percent reduction), nor cause to be discharged into the atmosphere from the affected facility any gases that contain SO_2 in excess of 520 ng/J (1.2 lb/MMBtu) heat input. If coal is combusted with other fuels, the affected facility shall neither: cause to be discharged into the atmosphere from the affected facility any gases that contain SO_2 in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 10 percent (0.10) of the potential SO_2 emission rate (90 percent reduction), nor cause to be discharged into the atmosphere from the affected facility any gases that contain SO_2 in excess of the emission limit is determined pursuant to paragraph (e)(2) of this section.

(b) Except as provided in paragraphs (c) and (e) of this section, on and after the date on which the performance test is completed or required to be completed under § 60.8, whichever date comes first, the owner or operator of an affected facility that:

(1) Combusts only coal refuse alone in a fluidized bed combustion steam generating unit shall neither:

(i) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 20 percent (0.20) of the potential SO_2 emission rate (80 percent reduction); nor

(ii) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of SO_2 in excess of 520 ng/J (1.2 lb/MMBtu) heat input. If coal is fired with coal refuse, the affected facility subject to paragraph (a) of this section. If oil or any other fuel (except coal) is fired with coal refuse, the affected facility is subject to the 87 ng/J (0.20 lb/MMBtu) heat input SO_2 emissions limit or the 90 percent SO_2 reduction requirement specified in paragraph (a) of this section and the emission limit is determined pursuant to paragraph (e)(2) of this section.

(2) Combusts only coal and that uses an emerging technology for the control of SO_2 emissions shall neither:

(i) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 50 percent (0.50) of the potential SO_2 emission rate (50 percent reduction); nor

(ii) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 260 ng/J (0.60 lb/MMBtu) heat input. If coal is combusted with other fuels, the affected facility is subject to the 50 percent SO_2 reduction requirement specified in this paragraph and the emission limit determined pursuant to paragraph (e)(2) of this section.

(c) On and after the date on which the initial performance test is completed or required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, alone or in combination with any other fuel, and is listed in paragraphs (c)(1), (2), (3), or (4) of this section shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of the emission limit determined pursuant to paragraph (e)(2) of this section. Percent reduction requirements are not applicable to affected facilities under paragraphs (c)(1), (2), (3), or (4).

(1) Affected facilities that have a heat input capacity of 22 MW (75 MMBtu/h) or less;

(2) Affected facilities that have an annual capacity for coal of 55 percent (0.55) or less and are subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor for coal of 55 percent (0.55) or less.

(3) Affected facilities located in a noncontinental area; or

(4) Affected facilities that combust coal in a duct burner as part of a combined cycle system where 30 percent (0.30) or less of the heat entering the steam generating unit is from combustion of coal in the duct burner and 70 percent (0.70) or more of the heat entering the steam generating unit is from exhaust gases entering the duct burner.

(d) On and after the date on which the initial performance test is completed or required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 215 ng/J (0.50 lb/MMBtu) heat input from oil; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. The percent reduction requirements are not applicable to affected facilities under this paragraph.

(e) On and after the date on which the initial performance test is completed or required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, oil, or coal and oil with any other fuel shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of the following:

(1) The percent of potential SO_2 emission rate or numerical SO_2 emission rate required under paragraph (a) or (b)(2) of this section, as applicable, for any affected facility that

(i) Combusts coal in combination with any other fuel;

(ii) Has a heat input capacity greater than 22 MW (75 MMBtu/h); and

(iii) Has an annual capacity factor for coal greater than 55 percent (0.55); and

(2) The emission limit determined according to the following formula for any affected facility that combusts coal, oil, or coal and oil with any other fuel:

$$E_s = \frac{(K_a H_a + K_b H_b + K_c H_c)}{(H_a + H_b + H_c)}$$

Where:

E_s = SO_2 emission limit, expressed in ng/J or lb/MMBtu heat input;

K_a = 520 ng/J (1.2 lb/MMBtu);

K_b = 260 ng/J (0.60 lb/MMBtu);

K_c = 215 ng/J (0.50 lb/MMBtu);

H_a = Heat input from the combustion of coal, except coal combusted in an affected facility subject to paragraph (b)(2) of this section, in Joules (J) [MMBtu];

H_b = Heat input from the combustion of coal in an affected facility subject to paragraph (b)(2) of this section, in J (MMBtu); and

H_c = Heat input from the combustion of oil, in J (MMBtu).

(f) Reduction in the potential SO_2 emission rate through fuel pretreatment is not credited toward the percent reduction requirement under paragraph (b)(2) of this section unless:

(1) Fuel pretreatment results in a 50 percent (0.50) or greater reduction in the potential SO_2 emission rate; and

(2) Emissions from the pretreated fuel (without either combustion or post-combustion SO_2 control) are equal to or less than the emission limits specified under paragraph (b)(2) of this section.

(g) Except as provided in paragraph (h) of this section, compliance with the percent reduction requirements, fuel oil sulfur limits, and emission limits of this section shall be determined on a 30-day rolling average basis.

(h) For affected facilities listed under paragraphs (h)(1), (2), (3), or (4) of this section, compliance with the emission limits or fuel oil sulfur limits under this section may be determined based on a certification from the fuel supplier, as described under § 60.48c(f), as applicable.

(1) Distillate oil-fired affected facilities with heat input capacities between 2.9 and 29 MW (10 and 100 MMBtu/hr).

(2) Residual oil-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/hr).

(3) Coal-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/h).

(4) Other fuels-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/h).

(i) The SO_2 emission limits, fuel oil sulfur limits, and percent reduction requirements under this section apply at all times, including periods of startup, shutdown, and malfunction.

(j) For affected facilities located in noncontinental areas and affected facilities complying with the percent reduction standard, only the heat input supplied to the affected facility from the combustion of coal and oil is counted under this section. No credit is provided for the heat input to the affected facility from wood or other fuels or for heat derived from exhaust gases from other sources, such as stationary gas turbines, internal combustion engines, and kilns.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5090, Jan. 28, 2009; 77 FR 9462, Feb. 16, 2012]

§ 60.43c Standard for particulate matter (PM).

(a) On and after the date on which the initial performance test is completed or required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility that commenced construction, reconstruction, or modification on or before February 28, 2005, that combusts coal or combusts mixtures of coal with other fuels and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater, shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of the following emission limits:

(1) 22 ng/J (0.051 lb/MMBtu) heat input if the affected facility combusts only coal, or combusts coal with other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less.

(2) 43 ng/J (0.10 lb/MMBtu) heat input if the affected facility combusts coal with other fuels, has an annual capacity factor for the other fuels greater than 10 percent (0.10), and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor greater than 10 percent (0.10) for fuels other than coal.

(b) On and after the date on which the initial performance test is completed or required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility that commenced construction, reconstruction, or modification on or before February 28, 2005, that combusts wood or combusts mixtures of wood with other fuels (except coal) and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater, shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of the following emissions limits:

(1) 43 ng/J (0.10 lb/MMBtu) heat input if the affected facility has an annual capacity factor for wood greater than 30 percent (0.30); or

(2) 130 ng/J (0.30 lb/MMBtu) heat input if the affected facility has an annual capacity factor for wood of 30 percent (0.30) or less and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor for wood of 30 percent (0.30) or less.

(c) On and after the date on which the initial performance test is completed or required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, wood, or oil and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. Owners and operators of an affected facility that elect to install, calibrate, maintain, and operate a continuous emissions monitoring system (CEMS) for measuring PM emissions according to the requirements of this subpart and are subject to a federally enforceable PM limit of 0.030 lb/MMBtu or less are exempt from the opacity standard specified in this paragraph (c).

(d) The PM and opacity standards under this section apply at all times, except during periods of startup, shutdown, or malfunction.

(e)(1) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility that commences construction, reconstruction, or modification after February 28, 2005, and that combusts coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of 13 ng/J (0.030 lb/MMBtu) heat input, except as provided in paragraphs (e)(2), (e)(3), and (e)(4) of this section.

(2) As an alternative to meeting the requirements of paragraph (e)(1) of this section, the owner or operator of an affected facility for which modification commenced after February 28, 2005, may elect to meet the requirements of this paragraph. On and after the date on which the initial performance test is completed or required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility that commences modification

after February 28, 2005 shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of both:

(i) 22 ng/J (0.051 lb/MMBtu) heat input derived from the combustion of coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels; and

(ii) 0.2 percent of the combustion concentration (99.8 percent reduction) when combusting coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels.

(3) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility that commences modification after February 28, 2005, and that combusts over 30 percent wood (by heat input) on an annual basis and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of 43 ng/J (0.10 lb/MMBtu) heat input.

(4) An owner or operator of an affected facility that commences construction, reconstruction, or modification after February 28, 2005, and that combusts only oil that contains no more than 0.50 weight percent sulfur or a mixture of 0.50 weight percent sulfur oil with other fuels not subject to a PM standard under § 60.43c and not using a post-combustion technology (except a wet scrubber) to reduce PM or SO_2 emissions is not subject to the PM limit in this section.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009; 77 FR 9462, Feb. 16, 2012]

§ 60.44c Compliance and performance test methods and procedures for sulfur dioxide.

(a) Except as provided in paragraphs (g) and (h) of this section and § 60.8(b), performance tests required under § 60.8 shall be conducted following the procedures specified in paragraphs (b), (c), (d), (e), and (f) of this section, as applicable. Section 60.8(f) does not apply to this section. The 30-day notice required in § 60.8(d) applies only to the initial performance test unless otherwise specified by the Administrator.

(b) The initial performance test required under § 60.8 shall be conducted over 30 consecutive operating days of the steam generating unit. Compliance with the percent reduction requirements and SO_2 emission limits under § 60.42c shall be determined using a 30-day average. The first operating day included in the initial performance test shall be scheduled within 30 days after achieving the maximum production rate at which the affect facility will be operated, but not later than 180 days after the initial startup of the facility. The steam generating unit load during the 30-day period does not have to be the maximum design heat input capacity, but must be representative of future operating conditions.

(c) After the initial performance test required under paragraph (b) of this section and § 60.8, compliance with the percent reduction requirements and SO_2 emission limits under § 60.42c is based on the average percent reduction and the average SO_2 emission rates for 30 consecutive steam generating unit operating days. A separate performance test is completed at the end of each steam generating unit operating day, and a new 30-day average percent reduction and SO_2 emission rate are calculated to show compliance with the standard.

(d) If only coal, only oil, or a mixture of coal and oil is combusted in an affected facility, the procedures in Method 19 of appendix A of this part are used to determine the hourly SO_2 emission rate (E_{ho}) and the 30-day average SO_2 emission rate (E_{ao}). The hourly averages used to compute the 30-day averages are obtained from the CEMS. Method 19 of appendix A of this part shall be used to calculate E_{ao} when using daily fuel sampling or Method 6B of appendix A of this part.

(e) If coal, oil, or coal and oil are combusted with other fuels:

(1) An adjusted E_{ho} (E_{ho} o) is used in Equation 19-19 of Method 19 of appendix A of this part to compute the adjusted E_{ao} (E_{ao} o). The E_{ho} o is computed using the following formula:

$$E_{ho}o = \frac{E_{ho} - E_w(1 - X_1)}{X_1}$$

Where:

E_{ho} o = Adjusted E_{ho} , ng/J (lb/MMBtu);

E_{ho} = Hourly SO_2 emission rate, ng/J (lb/MMBtu);

E_w = SO_2 concentration in fuels other than coal and oil combusted in the affected facility, as determined by fuel sampling and analysis procedures in Method 9 of appendix A of this part, ng/J (lb/MMBtu). The value E_w for each fuel lot is used for each hourly average during the time that the lot is being combusted. The owner or operator does not have to measure E_w if the owner or operator elects to assume E_w = 0.

X_k = Fraction of the total heat input from fuel combustion derived from coal and oil, as determined by applicable procedures in Method 19 of appendix A of this part.

(2) The owner or operator of an affected facility that qualifies under the provisions of § 60.42c(c) or (d) (where percent reduction is not required) does not have to measure the parameters E_w or X_k if the owner or operator of the affected facility elects to measure emission rates of the coal or oil using the fuel sampling and analysis procedures under Method 19 of appendix A of this part.

(f) Affected facilities subject to the percent reduction requirements under § 60.42c(a) or (b) shall determine compliance with the SO_2 emission limits under § 60.42c pursuant to paragraphs (d) or (e) of this section, and shall determine compliance with the percent reduction requirements using the following procedures:

(1) If only coal is combusted, the percent of potential SO_2 emission rate is computed using the following formula:

$$\%P_s = 100\left(1 - \frac{\%R_g}{100}\right)\left(1 - \frac{\%R_f}{100}\right)$$

Where:

$\%P_s$ = Potential SO_2 emission rate, in percent;

$\%R_g$ = SO_2 removal efficiency of the control device as determined by Method 19 of appendix A of this part, in percent; and

$\%R_f$ = SO_2 removal efficiency of fuel pretreatment as determined by Method 19 of appendix A of this part, in percent.

(2) If coal, oil, or coal and oil are combusted with other fuels, the same procedures required in paragraph (f)(1) of this section are used, except as provided for in the following:

(i) To compute the $\%P_s$, an adjusted $\%R_g$ ($\%R_g$ o) is computed from E_{ao} o from paragraph (e)(1) of this section and an adjusted average SO_2 inlet rate (E_{ai} o) using the following formula:

$$\%R_{go} = 100\left(1 - \frac{E^{\circ}_{ao}}{E^{\circ}_{ai}}\right)$$

Where:

$\%R_g$ o = Adjusted $\%R_g$, in percent;

E_{ao} o = Adjusted E_{ao} , ng/J (lb/MMBtu); and

E_{ai} o = Adjusted average SO_2 inlet rate, ng/J (lb/MMBtu).

(ii) To compute E_{ai} o, an adjusted hourly SO_2 inlet rate (E_{hi} o) is used. The E_{hi} o is computed using the following formula:

$$E_{hi}o = \frac{E_{hi} - E_w(1 - X_k)}{X_k}$$

Where:

E_{hi} o = Adjusted E_{hi} , ng/J (lb/MMBtu);

E_{hi} = Hourly SO_2 inlet rate, ng/J (lb/MMBtu);

E_w = SO_2 concentration in fuels other than coal and oil combusted in the affected facility, as determined by fuel sampling and analysis procedures in Method 19 of appendix A of this part, ng/J (lb/MMBtu). The value E_w for each fuel lot is used for each hourly average during the time that the lot is being combusted. The owner or operator does not have to measure E_w if the owner or operator elects to assume E_w = 0; and

X_k = Fraction of the total heat input from fuel combustion derived from coal and oil, as determined by applicable procedures in Method 19 of appendix A of this part.

(g) For oil-fired affected facilities where the owner or operator seeks to demonstrate compliance with the fuel oil sulfur limits under § 60.42c based on shipment fuel sampling, the initial performance test shall consist of sampling and analyzing the oil in the initial tank of oil to be fired in the steam generating unit to demonstrate that the oil contains 0.5 weight percent sulfur or less. Thereafter, the owner or operator of the affected facility shall sample the oil in the fuel tank after each new shipment of oil is received, as described under § 60.46c(d)(2).

(h) For affected facilities subject to § 60.42c(h)(1), (2), or (3) where the owner or operator seeks to demonstrate compliance with the SO_2 standards based on fuel supplier certification, the performance test shall consist of the certification from the fuel supplier, as described in § 60.48c(f), as applicable.

(i) The owner or operator of an affected facility seeking to demonstrate compliance with the SO_2 standards under § 60.42c(c)(2) shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour average firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.

(j) The owner or operator of an affected facility shall use all valid SO_2 emissions data in calculating $\%P_s$ and E_{ho} under paragraphs (d), (e), or (f) of this section, as applicable, whether or not the minimum emissions data requirements under § 60.46c(f) are achieved. All valid emissions data, including valid data collected during periods of startup, shutdown, and malfunction, shall be used in calculating $\%P_s$ or E_{ho} pursuant to paragraphs (d), (e), or (f) of this section, as applicable.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009]

§ 60.45c Compliance and performance test methods and procedures for particulate matter.

(a) The owner or operator of an affected facility subject to the PM and/or opacity standards under § 60.43c shall conduct an initial performance test as required under § 60.8, and shall conduct subsequent performance tests as requested by the Administrator, to determine compliance with the standards using the following procedures and reference methods, except as specified in paragraph (c) of this section.

(1) Method 1 of appendix A of this part shall be used to select the sampling site and the number of traverse sampling points.

(2) Method 3A or 3B of appendix A-2 of this part shall be used for gas analysis when applying Method 5 or 5B of appendix A-3 of this part or 17 of appendix A-6 of this part.

(3) Method 5, 5B, or 17 of appendix A of this part shall be used to measure the concentration of PM as follows:

(i) Method 5 of appendix A of this part may be used only at affected facilities without wet scrubber systems.

(ii) Method 17 of appendix A of this part may be used at affected facilities with or without wet scrubber systems provided the stack gas temperature does not exceed a temperature of 160 °C (320 °F). The procedures of Sections 8.1 and 11.1 of Method 5B of appendix A of this part may be used in Method 17 of appendix A of this part only if Method 17 of appendix A of this part is used in conjunction with a wet scrubber system. Method 17 of appendix A of this part shall not be used in conjunction with a wet scrubber system if the effluent is saturated or laden with water droplets.

(iii) Method 5B of appendix A of this part may be used in conjunction with a wet scrubber system.

(4) The sampling time for each run shall be at least 120 minutes and the minimum sampling volume shall be 1.7 dry standard cubic meters (dscm) [60 dry standard cubic feet (dscf)] except that smaller sampling times or volumes may be approved by the Administrator when necessitated by process variables or other factors.

(5) For Method 5 or 5B of appendix A of this part, the temperature of the sample gas in the probe and filter holder shall be monitored and maintained at 160 ±14 °C (320±25 °F).

(6) For determination of PM emissions, an oxygen (O_2) or carbon dioxide (CO_2) measurement shall be obtained simultaneously with each run of Method 5, 5B, or 17 of appendix A of this part by traversing the duct at the same sampling location.

(7) For each run using Method 5, 5B, or 17 of appendix A of this part, the emission rates expressed in ng/J (lb/MMBtu) heat input shall be determined using:

(i) The O_2 or CO_2 measurements and PM measurements obtained under this section, (ii) The dry basis F factor, and

(iii) The dry basis emission rate calculation procedure contained in Method 19 of appendix A of this part.

(8) Method 9 of appendix A-4 of this part shall be used for determining the opacity of stack emissions.

(b) The owner or operator of an affected facility seeking to demonstrate compliance with the PM standards under § 60.43c(b)(2) shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour average firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.

(c) In place of PM testing with Method 5 or 5B of appendix A-3 of this part or Method 17 of appendix A-6 of this part, an owner or operator may elect to install, calibrate, maintain, and operate a CEMS for monitoring PM emissions discharged to the atmosphere and record the output of the system. The owner or operator of an affected facility who elects to continuously monitor PM emissions instead of conducting performance testing using Method 5 or 5B of appendix A-3 of this part or Method 17 of appendix A-6 of this part shall install, calibrate, maintain, and operate a CEMS and shall comply with the requirements specified in paragraphs (c)(1) through (c)(14) of this section.

(1) Notify the Administrator 1 month before starting use of the system.

(2) Notify the Administrator 1 month before stopping use of the system.

(3) The monitor shall be installed, evaluated, and operated in accordance with § 60.13 of subpart A of this part.

(4) The initial performance evaluation shall be completed no later than 180 days after the date of initial startup of the affected facility, as specified under § 60.8 of subpart A of this part or within 180 days of notification to the Administrator of use of CEMS if the owner or operator was previously determining compliance by Method 5, 5B, or 17 of appendix A of this part performance tests, whichever is later.

(5) The owner or operator of an affected facility shall conduct an initial performance test for PM emissions as required under § 60.8 of subpart A of this part. Compliance with the PM emission limit shall be determined by using the CEMS specified in paragraph (d) of this section to measure PM and calculating a 24-hour block arithmetic average emission concentration using EPA Reference Method 19 of appendix A of this part, section 4.1.

(6) Compliance with the PM emission limit shall be determined based on the 24-hour daily (block) average of the hourly arithmetic average emission concentrations using CEMS outlet data.

(7) At a minimum, valid CEMS hourly averages shall be obtained as specified in paragraph (c)(7)(i) of this section for 75 percent of the total operating hours per 30-day rolling average.

(i) At least two data points per hour shall be used to calculate each 1-hour arithmetic average.

(ii) [Reserved]

(8) The 1-hour arithmetic averages required under paragraph (c)(7) of this section shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the boiler operating day daily arithmetic average emission concentrations. The 1-hour arithmetic averages shall be calculated using the data points required under § 60.13(e)(2) of subpart A of this part.

(9) All valid CEMS data shall be used in calculating average emission concentrations even if the minimum CEMS data requirements of paragraph (c)(7) of this section are not met.

(10) The CEMS shall be operated according to Performance Specification 11 in appendix B of this part.

(11) During the correlation testing runs of the CEMS required by Performance Specification 11 in appendix B of this part, PM and O_2 (or CO_2) data shall be collected concurrently (or within a 30- to 60-minute period) by both the continuous emission monitors and performance tests conducted using the following test methods.

(i) For PM, Method 5 or 5B of appendix A-3 of this part or Method 17 of appendix A-6 of this part shall be used; and

(ii) For O2 (or CO_2), Method 3A or 3B of appendix A-2 of this part, as applicable shall be used.

(12) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with procedure 2 in appendix F of this part. Relative Response Audit's must be performed annually and Response Correlation Audits must be performed every 3 years.

(13) When PM emissions data are not obtained because of CEMS breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained by using other monitoring systems as approved by the Administrator or EPA Reference Method 19 of appendix A of this part to provide, as necessary, valid emissions data for a minimum of 75 percent of total operating hours on a 30-day rolling average.

(14) As of January 1, 2012, and within 90 days after the date of completing each performance test, as defined in § 60.8, conducted to demonstrate compliance with this subpart, you must submit relative accuracy test audit (*i.e.,* reference method) data and performance test (*i.e.,* compliance test) data, except opacity data, electronically to EPA's Central Data Exchange (CDX) by using the Electronic Reporting Tool (ERT) (see *http://www.epa.gov/ttn/chief/ert/ert tool.html/*) or other compatible electronic spreadsheet. Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically into EPA's WebFIRE database.

(d) The owner or operator of an affected facility seeking to demonstrate compliance under § 60.43c(e)(4) shall follow the applicable procedures under § 60.48c(f). For residual oil-fired affected facilities, fuel supplier certifications are only allowed for facilities with heat input capacities between 2.9 and 8.7 MW (10 to 30 MMBtu/h).

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009; 76 FR 3523, Jan. 20, 2011; 77 FR 9463, Feb. 16, 2012]

§ 60.46c Emission monitoring for sulfur dioxide.

(a) Except as provided in paragraphs (d) and (e) of this section, the owner or operator of an affected facility subject to the SO_2 emission limits under § 60.42c shall install, calibrate, maintain, and operate a CEMS for measuring SO_2 concentrations and either O_2 or CO_2 concentrations at the outlet of the SO_2 control device (or the outlet of the steam generating unit if no SO_2 control device is used), and shall record the output of the system. The owner or operator of an affected facility subject to the percent reduction requirements under § 60.42c shall measure SO_2 concentrations and either O_2 or CO_2 concentrations at both the inlet and outlet of the SO_2 control device.

(b) The 1-hour average SO_2 emission rates measured by a CEMS shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the average emission rates under § 60.42c. Each 1-hour average SO_2 emission rate must be based on at least 30 minutes of operation, and shall be calculated using the data points required under § 60.13(h)(2). Hourly SO_2 emission rates are not calculated if the affected facility is operated less than 30 minutes in a 1-hour period and are not counted toward determination of a steam generating unit operating day.

(c) The procedures under § 60.13 shall be followed for installation, evaluation, and operation of the CEMS.

(1) All CEMS shall be operated in accordance with the applicable procedures under Performance Specifications 1, 2, and 3 of appendix B of this part.

(2) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 1 of appendix F of this part.

(3) For affected facilities subject to the percent reduction requirements under § 60.42c, the span value of the SO_2 CEMS at the inlet to the SO_2 control device shall be 125 percent of the maximum estimated hourly potential SO_2 emission rate of the fuel combusted, and the span value of the SO_2 CEMS at the outlet from the SO_2 control device shall be 50 percent of the maximum estimated hourly potential SO_2 emission rate of the fuel combusted.

(4) For affected facilities that are not subject to the percent reduction requirements of § 60.42c, the span value of the SO_2 CEMS at the outlet from the SO_2 control device (or outlet of the steam generating unit if no SO_2 control device is used) shall be 125 percent of the maximum estimated hourly potential SO_2 emission rate of the fuel combusted.

(d) As an alternative to operating a CEMS at the inlet to the SO_2 control device (or outlet of the steam generating unit if no SO_2 control device is used) as required under paragraph (a) of this section, an owner or operator may elect to determine the average SO_2 emission rate by sampling the fuel prior to combustion. As an alternative to operating a CEMS at the outlet from the SO_2 control device (or outlet of the steam generating unit if no SO_2 control device is used) as required under paragraph (a) of this section, an owner or operator may elect to determine the average SO_2 emission rate by using Method 6B of appendix A of this part. Fuel sampling shall be conducted pursuant to either paragraph (d)(1) or (d)(2) of this section. Method 6B of appendix A of this part shall be conducted pursuant to paragraph (d)(3) of this section.

(1) For affected facilities combusting coal or oil, coal or oil samples shall be collected daily in an as-fired condition at the inlet to the steam generating unit and analyzed for sulfur content and heat content according the Method 19 of appendix A of this part. Method 19 of appendix A of this part provides procedures for converting these measurements into the format to be used in calculating the average SO_2 input rate.

(2) As an alternative fuel sampling procedure for affected facilities combusting oil, oil samples may be collected from the fuel tank for each steam generating unit immediately after the fuel tank is filled and before any oil is combusted. The owner or operator of the affected facility shall analyze the oil sample to determine the sulfur content of the oil. If a partially empty fuel tank is refilled, a new sample and analysis of the fuel in the tank would be required upon filling. Results of the fuel analysis taken after each new shipment of oil is received shall be used as the daily value when

calculating the 30-day rolling average until the next shipment is received. If the fuel analysis shows that the sulfur content in the fuel tank is greater than 0.5 weight percent sulfur, the owner or operator shall ensure that the sulfur content of subsequent oil shipments is low enough to cause the 30-day rolling average sulfur content to be 0.5 weight percent sulfur or less.

(3) Method 6B of appendix A of this part may be used in lieu of CEMS to measure SO_2 at the inlet or outlet of the SO_2 control system. An initial stratification test is required to verify the adequacy of the Method 6B of appendix A of this part sampling location. The stratification test shall consist of three paired runs of a suitable SO_2 and CO_2 measurement train operated at the candidate location and a second similar train operated according to the procedures in § 3.2 and the applicable procedures in section 7 of Performance Specification 2 of appendix B of this part. Method 6B of appendix A of this part, Method 6A of appendix A of this part, or a combination of Methods 6 and 3 of appendix A of this part or Methods 6C and 3A of appendix A of this part are suitable measurement techniques. If Method 6B of appendix A of this part is used for the second train, sampling time and timer operation may be adjusted for the stratification test as long as an adequate sample volume is collected; however, both sampling trains are to be operated similarly. For the location to be adequate for Method 6B of appendix A of this part 24-hour tests, the mean of the absolute difference between the three paired runs must be less than 10 percent (0.10).

(e) The monitoring requirements of paragraphs (a) and (d) of this section shall not apply to affected facilities subject to § 60.42c(h) (1), (2), or (3) where the owner or operator of the affected facility seeks to demonstrate compliance with the SO_2 standards based on fuel supplier certification, as described under § 60.48c(f), as applicable.

(f) The owner or operator of an affected facility operating a CEMS pursuant to paragraph (a) of this section, or conducting as-fired fuel sampling pursuant to paragraph (d)(1) of this section, shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive steam generating unit operating days. If this minimum data requirement is not met with a single monitoring system, the owner or operator of the affected facility shall supplement the emission data with data collected with other monitoring systems as approved by the Administrator.

§ 60.47c Emission monitoring for particulate matter.

(a) Except as provided in paragraphs (c), (d), (e), and (f) of this section, the owner or operator of an affected facility combusting coal, oil, or wood that is subject to the opacity standards under § 60.43c shall install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS) for measuring the opacity of the emissions discharged to the atmosphere and record the output of the system. The owner or operator of an affected facility subject to an opacity standard in § 60.43c(c) that is not required to use a COMS due to paragraphs (c), (d), (e), or (f) of this section that elects not to use a COMS shall conduct a performance test using Method 9 of appendix A-4 of this part and the procedures in § 60.11 to demonstrate compliance with the applicable limit in § 60.43c by April 29, 2011, within 45 days of stopping use of an existing COMS, or within 180 days after initial startup of the facility, whichever is later, and shall comply with either paragraphs (a)(1), (a)(2), or (a)(3) of this section. The observation period for Method 9 of appendix A-4 of this part performance tests may be reduced from 3 hours to 60 minutes if all 6-minute averages are less than 10 percent and all individual 15-second observations are less than or equal to 20 percent during the initial 60 minutes of observation.

(1) Except as provided in paragraph (a)(2) and (a)(3) of this section, the owner or operator shall conduct subsequent Method 9 of appendix A-4 of this part performance tests using the procedures in paragraph (a) of this section according to the applicable schedule in paragraphs (a)(1)(i) through (a)(1)(iv) of this section, as determined by the most recent Method 9 of appendix A-4 of this part performance test results.

(i) If no visible emissions are observed, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 12 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later;

(ii) If visible emissions are observed but the maximum 6-minute average opacity is less than or equal to 5 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 6 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later;

(iii) If the maximum 6-minute average opacity is greater than 5 percent but less than or equal to 10 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 3 calendar months from

the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later; or

(iv) If the maximum 6-minute average opacity is greater than 10 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 45 calendar days from the date that the most recent performance test was conducted.

(2) If the maximum 6-minute opacity is less than 10 percent during the most recent Method 9 of appendix A-4 of this part performance test, the owner or operator may, as an alternative to performing subsequent Method 9 of appendix A-4 of this part performance tests, elect to perform subsequent monitoring using Method 22 of appendix A-7 of this part according to the procedures specified in paragraphs (a)(2)(i) and (ii) of this section.

(i) The owner or operator shall conduct 10 minute observations (during normal operation) each operating day the affected facility fires fuel for which an opacity standard is applicable using Method 22 of appendix A-7 of this part and demonstrate that the sum of the occurrences of any visible emissions is not in excess of 5 percent of the observation period (*i.e.* , 30 seconds per 10 minute period). If the sum of the occurrence of any visible emissions is greater than 30 seconds during the initial 10 minute observation, immediately conduct a 30 minute observation. If the sum of the occurrence of visible emissions is greater than 5 percent of the observation period (*i.e.,* 90 seconds per 30 minute period), the owner or operator shall either document and adjust the operation of the facility and demonstrate within 24 hours that the sum of the occurrence of visible emissions is equal to or less than 5 percent during a 30 minute observation (*i.e.,* 90 seconds) or conduct a new Method 9 of appendix A-4 of this part performance test using the procedures in paragraph (a) of this section within 45 calendar days according to the requirements in § 60.45c(a)(8).

(ii) If no visible emissions are observed for 10 operating days during which an opacity standard is applicable, observations can be reduced to once every 7 operating days during which an opacity standard is applicable. If any visible emissions are observed, daily observations shall be resumed.

(3) If the maximum 6-minute opacity is less than 10 percent during the most recent Method 9 of appendix A-4 of this part performance test, the owner or operator may, as an alternative to performing subsequent Method 9 of appendix A-4 performance tests, elect to perform subsequent monitoring using a digital opacity compliance system according to a site-specific monitoring plan approved by the Administrator. The observations shall be similar, but not necessarily identical, to the requirements in paragraph (a)(2) of this section. For reference purposes in preparing the monitoring plan, see OAQPS “Determination of Visible Emission Opacity from Stationary Sources Using Computer-Based Photographic Analysis Systems.” This document is available from the U.S. Environmental Protection Agency (U.S. EPA); Office of Air Quality and Planning Standards; Sector Policies and Programs Division; Measurement Policy Group (D243-02), Research Triangle Park, NC 27711. This document is also available on the Technology Transfer Network (TTN) under Emission Measurement Center Preliminary Methods.

(b) All COMS shall be operated in accordance with the applicable procedures under Performance Specification 1 of appendix B of this part. The span value of the opacity COMS shall be between 60 and 80 percent.

(c) Owners and operators of an affected facilities that burn only distillate oil that contains no more than 0.5 weight percent sulfur and/or liquid or gaseous fuels with potential sulfur dioxide emission rates of 26 ng/J (0.060 lb/MMBtu) heat input or less and that do not use a post-combustion technology to reduce SO2 or PM emissions and that are subject to an opacity standard in § 60.43c(c) are not required to operate a COMS if they follow the applicable procedures in § 60.48c(f).

(d) Owners or operators complying with the PM emission limit by using a PM CEMS must calibrate, maintain, operate, and record the output of the system for PM emissions discharged to the atmosphere as specified in § 60.45c(c). The CEMS specified in paragraph § 60.45c(c) shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.

(e) Owners and operators of an affected facility that is subject to an opacity standard in § 60.43c(c) and that does not use post-combustion technology (except a wet scrubber) for reducing PM, SO_2 , or carbon monoxide (CO) emissions, burns only gaseous fuels or fuel oils that contain less than or equal to 0.5 weight percent sulfur, and is operated such that emissions of CO discharged to the atmosphere from the affected facility are maintained at levels less than or equal to 0.15 lb/MMBtu on a boiler operating day average basis is not required to operate a COMS. Owners and

operators of affected facilities electing to comply with this paragraph must demonstrate compliance according to the procedures specified in paragraphs (e)(1) through (4) of this section; or

(1) You must monitor CO emissions using a CEMS according to the procedures specified in paragraphs (e)(1)(i) through (iv) of this section.

(i) The CO CEMS must be installed, certified, maintained, and operated according to the provisions in § 60.58b(i)(3) of subpart Eb of this part.

(ii) Each 1-hour CO emissions average is calculated using the data points generated by the CO CEMS expressed in parts per million by volume corrected to 3 percent oxygen (dry basis).

(iii) At a minimum, valid 1-hour CO emissions averages must be obtained for at least 90 percent of the operating hours on a 30-day rolling average basis. The 1-hour averages are calculated using the data points required in § 60.13(h)(2).

(iv) Quarterly accuracy determinations and daily calibration drift tests for the CO CEMS must be performed in accordance with procedure 1 in appendix F of this part.

(2) You must calculate the 1-hour average CO emissions levels for each steam generating unit operating day by multiplying the average hourly CO output concentration measured by the CO CEMS times the corresponding average hourly flue gas flow rate and divided by the corresponding average hourly heat input to the affected source. The 24-hour average CO emission level is determined by calculating the arithmetic average of the hourly CO emission levels computed for each steam generating unit operating day.

(3) You must evaluate the preceding 24-hour average CO emission level each steam generating unit operating day excluding periods of affected source startup, shutdown, or malfunction. If the 24-hour average CO emission level is greater than 0.15 lb/MMBtu, you must initiate investigation of the relevant equipment and control systems within 24 hours of the first discovery of the high emission incident and, take the appropriate corrective action as soon as practicable to adjust control settings or repair equipment to reduce the 24-hour average CO emission level to 0.15 lb/MMBtu or less.

(4) You must record the CO measurements and calculations performed according to paragraph (e) of this section and any corrective actions taken. The record of corrective action taken must include the date and time during which the 24-hour average CO emission level was greater than 0.15 lb/MMBtu, and the date, time, and description of the corrective action.

(f) An owner or operator of an affected facility that is subject to an opacity standard in § 60.43c(c) is not required to operate a COMS provided that the affected facility meets the conditions in either paragraphs (f)(1), (2), or (3) of this section.

(1) The affected facility uses a fabric filter (baghouse) as the primary PM control device and, the owner or operator operates a bag leak detection system to monitor the performance of the fabric filter according to the requirements in section § 60.48Da of this part.

(2) The affected facility uses an ESP as the primary PM control device, and the owner or operator uses an ESP predictive model to monitor the performance of the ESP developed in accordance and operated according to the requirements in section § 60.48Da of this part.

(3) The affected facility burns only gaseous fuels and/or fuel oils that contain no greater than 0.5 weight percent sulfur, and the owner or operator operates the unit according to a written site-specific monitoring plan approved by the permitting authority. This monitoring plan must include procedures and criteria for establishing and monitoring specific parameters for the affected facility indicative of compliance with the opacity standard. For testing performed as part of this site-specific monitoring plan, the permitting authority may require as an alternative to the notification and reporting requirements specified in §§ 60.8 and 60.11 that the owner or operator submit any deviations with the excess emissions report required under § 60.48c(c).

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009; 76 FR 3523, Jan. 20, 2011; 77 FR 9463, Feb. 16, 2012]

§ 60.48c Reporting and recordkeeping requirements.

(a) The owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by § 60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

(2) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under § 60.42c, or § 60.43c.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

(4) Notification if an emerging technology will be used for controlling SO_2 emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of § 60.42c(a) or (b)(1), unless and until this determination is made by the Administrator.

(b) The owner or operator of each affected facility subject to the SO_2 emission limits of § 60.42c, or the PM or opacity limits of § 60.43c, shall submit to the Administrator the performance test data from the initial and any subsequent performance tests and, if applicable, the performance evaluation of the CEMS and/or COMS using the applicable performance specifications in appendix B of this part.

(c) In addition to the applicable requirements in § 60.7, the owner or operator of an affected facility subject to the opacity limits in § 60.43c(c) shall submit excess emission reports for any excess emissions from the affected facility that occur during the reporting period and maintain records according to the requirements specified in paragraphs (c)(1) through (3) of this section, as applicable to the visible emissions monitoring method used.

(1) For each performance test conducted using Method 9 of appendix A-4 of this part, the owner or operator shall keep the records including the information specified in paragraphs (c)(1)(i) through (iii) of this section.

(i) Dates and time intervals of all opacity observation periods;

(ii) Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in the performance test; and

(iii) Copies of all visible emission observer opacity field data sheets;

(2) For each performance test conducted using Method 22 of appendix A-4 of this part, the owner or operator shall keep the records including the information specified in paragraphs (c)(2)(i) through (iv) of this section.

(i) Dates and time intervals of all visible emissions observation periods;

(ii) Name and affiliation for each visible emission observer participating in the performance test;

(iii) Copies of all visible emission observer opacity field data sheets; and

(iv) Documentation of any adjustments made and the time the adjustments were completed to the affected facility operation by the owner or operator to demonstrate compliance with the applicable monitoring requirements.

(3) For each digital opacity compliance system, the owner or operator shall maintain records and submit reports according to the requirements specified in the site-specific monitoring plan approved by the Administrator

(d) The owner or operator of each affected facility subject to the SO_2 emission limits, fuel oil sulfur limits, or percent reduction requirements under § 60.42c shall submit reports to the Administrator.

(e) The owner or operator of each affected facility subject to the SO_2 emission limits, fuel oil sulfur limits, or percent reduction requirements under § 60.42c shall keep records and submit reports as required under paragraph (d) of this section, including the following information, as applicable.

(1) Calendar dates covered in the reporting period.

(2) Each 30-day average SO_2 emission rate (ng/J or lb/MMBtu), or 30-day average sulfur content (weight percent), calculated during the reporting period, ending with the last 30-day period; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.

(3) Each 30-day average percent of potential SO_2 emission rate calculated during the reporting period, ending with the last 30-day period; reasons for any noncompliance with the emission standards; and a description of the corrective actions taken.

(4) Identification of any steam generating unit operating days for which SO_2 or diluent (O_2 or CO_2) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and a description of corrective actions taken.

(5) Identification of any times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and a description of corrective actions taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.

(6) Identification of the F factor used in calculations, method of determination, and type of fuel combusted.

(7) Identification of whether averages have been obtained based on CEMS rather than manual sampling methods.

(8) If a CEMS is used, identification of any times when the pollutant concentration exceeded the full span of the CEMS.

(9) If a CEMS is used, description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specifications 2 or 3 of appendix B of this part.

(10) If a CEMS is used, results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1 of this part.

(11) If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under paragraph (f)(1), (2), (3), or (4) of this section, as applicable. In addition to records of fuel supplier certifications, the report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.

(f) Fuel supplier certification shall include the following information:

(1) For distillate oil:

(i) The name of the oil supplier;

(ii) A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in § 60.41c; and

(iii) The sulfur content or maximum sulfur content of the oil.

(2) For residual oil:

(i) The name of the oil supplier;

(ii) The location of the oil when the sample was drawn for analysis to determine the sulfur content of the oil, specifically including whether the oil was sampled as delivered to the affected facility, or whether the sample was drawn from oil in storage at the oil supplier's or oil refiner's facility, or other location;

(iii) The sulfur content of the oil from which the shipment came (or of the shipment itself); and

(iv) The method used to determine the sulfur content of the oil.

(3) For coal:

(i) The name of the coal supplier;

(ii) The location of the coal when the sample was collected for analysis to determine the properties of the coal, specifically including whether the coal was sampled as delivered to the affected facility or whether the sample was collected from coal in storage at the mine, at a coal preparation plant, at a coal supplier's facility, or at another location. The certification shall include the name of the coal mine (and coal seam), coal storage facility, or coal preparation plant (where the sample was collected);

(iii) The results of the analysis of the coal from which the shipment came (or of the shipment itself) including the sulfur content, moisture content, ash content, and heat content; and

(iv) The methods used to determine the properties of the coal.

(4) For other fuels:

(i) The name of the supplier of the fuel;

(ii) The potential sulfur emissions rate or maximum potential sulfur emissions rate of the fuel in ng/J heat input; and

(iii) The method used to determine the potential sulfur emissions rate of the fuel.

(g)(1) Except as provided under paragraphs (g)(2) and (g)(3) of this section, the owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each operating day.

(2) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in § 60.48c(f) to demonstrate compliance with the SO_2 standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.

(3) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in § 60.42C to use fuel certification to demonstrate compliance with the SO_2 standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.

(h) The owner or operator of each affected facility subject to a federally enforceable requirement limiting the annual capacity factor for any fuel or mixture of fuels under § 60.42c or § 60.43c shall calculate the annual capacity factor individually for each fuel combusted. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of the calendar month.

(i) All records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.

(j) The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009]

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the Technical Support Document (ATSD) for a Part 70 Significant Source Modification and Significant Permit Modification

Source Background and Description

Source Name:	**StarPlus Energy LLC**
Source Location:	**2724 N. 50 E., Kokomo, Indiana 46901**
County:	**Howard**
SIC Code:	**3691 (Storage Batteries), 2869 (Industrial Organic Chemicals, Not Elsewhere Classified)**
Operation Permit No.:	**T 067-45648-00093**
Operation Permit Issuance Date:	**September 12, 2023**
Significant Source Modification No.:	**067-47602-00093**
Significant Permit Modification No.:	**067-47628-00093**
Permit Reviewer:	**Sidhant Paul**

On April 25, 2024, the Office of Air Quality (OAQ) had a notice posted on IDEM's website (https://www.in.gov/idem/public-notices/), stating that StarPlus Energy LLC had applied for a Significant source and permit modification to update the existing facilities emission unit descriptions, stack IDs and material throughputs and to add another plant of the same type at the source. The notice also stated that the OAQ proposed to issue a Significant source and Significant permit modification for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Comments and Responses

On May 14, 2024, StarPlus Energy, LLC submitted comments to IDEM, OAQ on the draft Significant source and permit modification.

The Technical Support Document (TSD) is used by IDEM, OAQ for historical purposes. IDEM, OAQ does not make any changes to the original TSD, but the Permit will have the updated changes. The comments and revised permit language are provided below with deleted language as ~~strikeouts~~ and new language **bolded**.

Comment 1:

For Boiler-01 – Boiler-04, the NOx emission factor needs to be revised from 100 lb/MMcf to 50 lb/MMcf since the boilers are low NOx boilers. This will decrease the NOx emissions from 5.37 tons NOx/yr/boiler to 2.69 ton NOx/yr/boiler. This change needs to be made on page 11 of 62 and page 50 of 62. Boilers Boiler 1 – Boiler 4 are rated at 12.5 MMBtu/hr; however, the boilers have low-Nox burners. Potential emissions from the boilers are below the insignificant thresholds in 326 IAC 2-7-1(21)(E); therefore, the boilers identified in A.2(q), should be moved to Section A.4. The equipment description for the boilers should also be revised as follows to reflect the low NOx burner:

Plant 1:

(q) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using **a low NOx burner for NOx control** ~~no control~~, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

...

Plant 2:

(q) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using **a low NOx burner for NOx control** ~~no control~~, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

Response to Comment 1:

IDEM agrees with the recommended changes, as the boilers are using Low NOx Burners. This resulted in IDEM creating an addendum to the calculations (Attachment A to the ATSD) updating the emission factor used in the calculations from 100 lb/MMcf to 50 lb/MMcf.

			Potential Emission					
Emission Unit		PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
BOILER-01	lbs/hr	0.023	0.093	0.093	0.007	0.613	0.067	1.029
	lbs/day	0.559	2.235	2.235	0.176	14.706	1.618	24.706
BOILER-02	lbs/hr	0.023	0.093	0.093	0.007	0.613	0.067	1.029
	lbs/day	0.559	2.235	2.235	0.176	14.706	1.618	24.706
BOILER-03	lbs/hr	0.023	0.093	0.093	0.007	0.613	0.067	1.029
	lbs/day	0.559	2.235	2.235	0.176	14.706	1.618	24.706
BOILER-04	lbs/hr	0.023	0.093	0.093	0.007	0.613	0.067	1.029
	lbs/day	0.559	2.235	2.235	0.176	14.706	1.618	24.706
Insignificant activity threshold	lbs/hr		<5	<5	<5	<5	<3	
	lbs/day		<25	<25	<25	<25	<15	<25

The use of Low NOx Burners resulted in the PTE of each boiler to be under the insignificant activity threshold as such the boilers have been moved to A.4 section of the permit.

The permit has been revised as follows:

…

A.3 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]

This stationary source consists of the following emission units and pollution control devices:

Plant 1:

...

~~(q) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler1, approved in 2024 for construction with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.~~

~~Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.~~

Plant 2:

...

~~(q) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.~~

~~Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.~~

A.4 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

Plant 1:

...

(i) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using a low NOx burner for NOx control and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

Plant 2:

...

(f) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using a low NOx burner for NOx control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

...

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

~~(q) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.~~

~~Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.~~

Insignificant activities

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating1 to W-Heating3, approved in 2023 for construction and approved for modification in 2024, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating01 through S-Heating-60, approved in 2023 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump1, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Twenty-six (26) cooling towers, identified as CWT01-CWT26, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 4,615 gal/min each, using no control, and exhausting to the atmosphere.

(f) Maintenance welding, gas metal arc welding (GMAW), 5,000 lbs of carbon steel electrode per year, uncontrolled, and exhausting to the indoors.

(g) Maintenance painting, using aerosol cans, with a maximum usage of five (5) 12oz cans per week uncontrolled, and exhausting to the indoors.

(i) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using a low NOx burner for NOx control and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

....

SECTION D.12 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

~~(q) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.~~

~~Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.~~

Insignificant activities

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating4 to W-Heating6, 2024 for construction, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating61 through S-Heating-120, approved in 2024 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Four (4) cooling towers, identified as CWT27-CWT30, approved in 2024 for construction, with a maximum capacity of 5,500 gal/min each, using no control, and exhausting to the atmosphere.

(f) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using a low NOx burner for NOx control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

...

SECTION E.5 NSPS

Emissions Unit Description:

Insignificant activities

Plant 1:

(~~q~~**i**) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using ~~no control~~ **a low NOx burner for NOx control**, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

Plant 2:

(~~q~~**f**) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction**,** with a maximum heat input capacity of 12.50 MMBTU/hr, each, ~~no control~~ **a low NOx burner for NOx control**, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

...

Comment 2:

Starplus has decided to use a new hot melt resin. The current inventory lists Technomelt PS 1753 and the facility will switch to Technomelt PS 8210 EV. The two materials are both solids with low VOCs; however, the biggest difference is the amount of material required. Potential hot melt usage for Technomelt PS 8210 EV increase from 40 tons per year to 241 tons/year. This will cause an increase in 2.26 tons/yr uncontrolled VOC and 0.68 tons/yr controlled emissions for Assembly for each plant. The facility-wide VOC emissions will remain below the PSD threshold at 230.51 tons/yr.

Response to Comment 2:

IDEM agrees with the change in material used and quantity used. However, based on addititional information provided by the source it was determined that the VOC content of the Techno melt PS 8210 EV is zero. As such the calculations (Attachment A to the ATSD) were updated to reflect the change in material type, quantity and the resulting change in the PTE. There was no change in rule applicability for the process.

To provide further clarity about the general assembly operation IDEM OAQ decided to include an updated process description (see response to comment 3 for a more detailed bold and strikeout of the permit):

Plant 1

(1) One (1) General assembly operation, identified as GAO1, approved for construction in 2024, consisting of adhesive and gap filling operations.

Plant 2

(2) One (1) General assembly operation, identified as GAO2, approved for construction in 2024, consisting of adhesive and gap filler operations.

Comment 3:

Please note that StarPlus will utilize a lime injection system for safety purposes in its Assembly process. Lime is added to the duct prior to the baghouse to prevent injection. The lime will react upon injection to form a cake so that any emissions from the lime injection would be negligible. The cake formation will increase the filter efficiency; however StarPlus does not plan on taking credit for the additional control efficiency. The purpose of the lime injection is for safety, not emissions control. The source provided additional information stating that the lime would be manually added to the duct and that both plant 1 and plant 2 would have an anticipated combined maximum usage of 12 tons per year.

Response to Comment 3:

IDEM agrees that StarPlus Energy LLC is using lime as a safety measure rather than as an emissions control. IDEM does agree that any emissions from the lime injection would be negligible, this can be seen in the PLT 1 assembly (general) and PLT 2 assembly (general) tab in the updated potential to emit calculations included as Attachment A to the ATSD.

IDEM has drafted the following unit descriptions for the process:

Plant 1
(1) One (1) Lime duct injection operation, identified as LDI1, approved for construction in 2024, with a maximum capacity of 6 tons a year of lime.

Plant 2
(1) One (1) Lime duct injection operation, identified as LDI2, approved for construction in 2024, with a maximum capacity of 6 tons a year of lime.

The permit has been revised as follows to address comment 2 and 3:

A.3 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]

This stationary source consists of the following emission units and pollution control devices:

Plant 1:

....
(n) One (1) Assembly process, consisting of the following:
....

(5) One (1) General assembly operation, identified as GAO1, approved for construction in 2024, consisting of adhesive and gap filling operations.

(6) One (1) Lime duct injection operation, identified as LDI1, approved for construction in 2024, with a maximum capacity of 6 tons a year of lime.

...

Plant 2:

(n) One (1) Assembly process, consisting of the following:
....

(5) One (1) General assembly operation, identified as GAO2, approved for construction in 2024, consisting of adhesive and gap filling operations.

(6) One (1) Lime duct injection operation , identified as LDI2, approved for construction in 2024, with a maximum capacity of 6 tons a year of lime

...

SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

...

(n) One (1) Assembly process, consisting of the following:

...

(5) One (1) General assembly operation, identified as GAO1, approved for construction in 2024, consisting of adhesive and gap filling operations.

(6) One (1) Lime duct injection operation , identified as LDI1, approved for construction in 2024, with a maximum capacity of 6 tons a year of lime

...

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

D.5.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
.....		
Lime duct injection operation	**LDI1**	**0.03 grain/dscf ***

* PM emissions shall not exceed the above limit for each individual unit

....

SECTION D.11 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

...

(n) One (1) Assembly process, consisting of the following:

...

(5) One (1) General assembly operation, identified as GAO2, approved for construction in 2024, consisting of adhesive and gap filling operations.

(6) One (1) Lime duct injection operation , identified as LDI2, approved for construction in 2024, with a maximum capacity of 6 tons a year of lime

...

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.11.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
.....		
Lime duct injection operation	**LDI2**	**0.03 grain/dscf ***

* PM emissions shall not exceed the above limit for each individual unit

…

EPA comments

On May 28, 2024, the U.S. EPA submitted comments to IDEM, OAQ on the draft Significant source and permit modification.

EPA Comments 1, 2, 3, and 4

1. Condition D.1.1 establishes a combined PM/PM10/PM2.5 emissions limit of 5.46 lb/hr for processes Cline1 to Cline4, which vent through stacks 01-PEF-03 through 01-PEF-05. Condition D.1.6 establishes testing requirements for the stacks 01-PEF-03 through 01-PEF-05 to demonstrate compliance with emissions limit established in condition D.1.1. I recommend specifying simultaneous tests on stacks 01-PEF-03 through 01-PEF-05, as the limit in D.1.1 is a combined limit for stacks 01-PEF-03 through 01-PEF-05.

2. Condition D.7.1 establishes a combined PM/PM10/PM2.5 emissions limit of 5.46 lb/hr for processes Cline5 to Cline8, which vent through stacks 02-PEF-03 through 02-PEF-05. Condition D.7.6 establishes testing requirements for the stacks 02-PEF-03 through 02-PEF-05 to demonstrate compliance with emissions limit established in condition D.7.1. I recommend specifying simultaneous tests on stacks 02-PEF-03 through 02-PEF-05, as the limit in D.7.1 is a combined limit for stacks 02-PEF-03 through 02-PEF-05.

3. Condition D.2.1 establishes a combined PM/PM10/PM2.5 emissions limit of 8.75 lb/hr for processes Aline1 to Aline4, which vent through stacks 01-PEF-01 through 01-PEF-02. Condition D.2.5 establishes testing requirements for the stacks 01-PEF-01 through 01-PEF-02 to

demonstrate compliance with emissions limit established in condition D.2.1. I recommend specifying simultaneous tests on stacks 01-PEF-01 and 01-PEF-02, as the limit in D.2.1 is a combined limit for stacks 01-PEF-01 through 01-PEF-02.

4. Condition D.8.1 establishes a combined PM/PM10/PM2.5 emissions limit of 8.75 lb/hr for processes Aline5 to Aline8, which vent through stacks 02-PEF-01 through 02-PEF-02. Condition D.8.5 establishes testing requirements for the stacks 02-PEF-01 through 02-PEF-02 to demonstrate compliance with emissions limit established in condition D.8.1. I recommend specifying simultaneous tests on stacks 02-PEF-01 and 02-PEF-02, as the limit in D.8.1 is a combined limit for stacks 02-PEF-01 through 02-PEF-02.

IDEM Response to EPA Comments 1, 2, 3, and 4

It was always IDEM's intent in the draft permit to require the source to conduct simultaneous testing of the stacks. As a result of these comments, IDEM has modified the conditions in Section D.1.6, D.2.5, D.7.6 and D.8.5 to make it clearer that simultaneous testing is required. The permit has been revised as follows:

....

D.1.6 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.1.1 D.1.2, and D.1.3, not later than 180 days after startup of the emission units and associated controls associated with CLine1-CLine4, the Permittee shall perform PM, PM_{10}, $PM_{2.5}$, Nickel, and Cobalt testing on the stack**s** identified as " 01-PEF-03, 01-PEF-04 and 01-PEF-05" **simultaneously** utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

.....

D.2.5 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.2.1 and D.2.2, not later than 180 days after startup of the emission units and controls associated with ALine1-Aline4, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$, testing of the stack**s** identified as "01-PEF-01 and 01-PEF-02" **simultaneously** utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

....

D.7.6 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.7.1, D.7.2, and D.7.3, not later than 180 days after startup of the emission units and associated controls associated with CLine4**5**-CLine4**8**, the Permittee shall perform PM, PM_{10}, $PM_{2.5}$, Nickel, and Cobalt testing on the stack**s** identified as "02-PEF-03, 02-PEF-04 and 02-PEF-05 " **simultaneously** utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

...

D.8.5 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.8.1 and D.8.2, not later than 180 days after startup of the emission units and associated controls associated with ALine5 to ALine8, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$, testing of the stack**s** identified as "02-PEF-01 **and 02-PEF**-02" **simultaneously** utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

....

EPA Comments 5 and 6

5. Condition D.3.5 establishes VOC testing requirements for coating line C-coat1, C-coat2, C-coat3 and C-coat4. The draft permit requires VOC testing (including emission rate, overall destruction efficiency, and overall capture efficiency) on one (1) of the associated integral Solvent recovery towers (SRT-01 or SRT-02 or SRT-03 or SRT-04). The VOC emission rate of 4.66 lb/hr is specified in Condition D.3.1. However, the draft permit does not include a value for VOC destruction efficiency. Per emission calculations in the TSD, a destruction efficiency of 99.6% is required to achieve the 4.66 lb/hr VOC emission limit. Please evaluate if the permit should specify a limit for the destruction efficiency.

6. Please update Condition D.9.5 if a value for destruction efficiency is needed in the draft permit.

IDEM Response to EPA Comments 5 and 6

The source is required to comply with pound of VOC per hour PSD avoidance limits (Conditions D.3.1 and D.9.1) along with a pound per gallon excluding water limit with regards to VOC emissions from the cathode coating pursuant to 326 IAC 8-2-4 (Conditions D.3.2 and D.9.2). The source is using the integral solvent recovery towers as an alternative means to comply with the VOC content limit. As a result in Conditions D.3.6 and D.9.6, the source is required to achieve an overall efficiency greater than 95.0% for each integral solvent recovery tower. To show compliance with Conditions D.3.2 and D.9.2 the source is required to conduct testing on the overall destruction efficiency and overall capture efficiency. Therefore, it is unnecessary to specify an overall destruction efficiency in Conditions D.3.1 or D.9.1. No changes were made to the permit as a result of these comments.

EPA Comment 7

7. Condition D.3.8 establishes compliance monitoring requirements for the solvent recovery towers. Condition D.3.8(c) requires water flow rate monitoring and recording once a day. Water flow rate monitoring is an important parameter to determine control device effectiveness. Please consider using monitoring and recording frequency as specified in D.3.8(a) for monitoring of important parameters and for consistency purposes. Please update the recordkeeping and reporting requirements in Condition D.1.10 accordingly.

IDEM Response to EPA Comment 7

IDEM agrees with the change as measuring flow rate on a 15-minute interval will more accurately ensure proper system function and reduces the time frame in which a deviation would go unnoticed. The permit has been revised as follows:

…

D.3.8 Solvent Recovery Tower Monitoring

...

(c) **In order to ensure compliance with Conditions D.3.1 and D.3.2, a continuous monitoring system shall be calibrated, maintained, and operated on each of the integral Solvent Recovery Towers, SRT01-SRT04,** for measuring T~~he Permittee shall monitor and record~~ water flow rate~~. at each integral Solvent Recovery Tower, (SRT01-SRT04) at least once per day.~~ **For purposes of this condition continuous shall mean water flow rate measurement no less often than once per fifteen (15) minutes. The output of this system shall be recorded as a three (3) hour average.** The integral Solvent Recovery Tower, (SRT01-SRT04) shall be operated **at the 3-hour average** water flow rate which shall be recommended by the manufacturer.

...

D.3.11~~0~~ Record Keeping Requirement

...

(b) To document the compliance status with Condition D.3.8(c) , the Permittee shall maintain ~~daily~~ **continuous** records **(on a 3-hour average basis)** of the water flow rate at each integral Solvent Recovery Tower, (SRT01-SRT04). The Permittee shall include in its ~~daily~~ records when a ~~pressure~~ **continuous water flow rate reading** is not taken and the reason for the lack of **continuous** water flow rate reading (e.g., the process did not operate that day).

...

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.9.8 Solvent Recovery Tower Monitoring

...

(c) ~~The Permittee shall monitor and **record**~~ **In order to ensure compliance with Conditions D.9.1 and D.9.2, a continuous monitoring system shall be calibrated, maintained, and operated on each of the integral Solvent Recovery Towers, SRT05-SRT08, for measuring** water flow rate ~~at each integral Solvent Recovery Tower, (SRT05-SRT08) at least once per day~~. **For purposes of this condition continuous shall mean water flow rate measurement no less often than once per fifteen (15) minutes. The output of this system shall be recorded as a three (3) hour average**. The integral Solvent Recovery Tower, (SRT05-SRT08) shall be operated at the 3-hour average water flow rate which shall be recommended by the manufacturer.

...

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.9.10~~1~~ Record Keeping Requirement

...

(b) To document the compliance status with Condition D.9.8(c), the Permittee shall maintain ~~daily~~ **continuous** records **(on a 3-hour average basis)** of the water flow rate at each integral Solvent Recovery Tower, (SRT05-SRT08). The Permittee shall include in its **continuous** ~~daily~~ records when a **continuous water flow rate** reading is not taken and the reason for the lack of **continuous** water flow rate reading (e.g., the process did not operate that day).

EPA Comment 8

8. Please consider adding compliance monitoring, reporting and recordkeeping requirements for the units and control devices in Condition D.5. The estimated PTE for the units is over 26 tons per year of PM/PM10/PM2.5 (per TSD). Several units are controlled by a bag filter. In addition, please consider adding visible emissions monitoring for the bag filters if a performance test is not being required.

IDEM Response to EPA Comment 8

IDEM has evaluated the EPA's comment and does not agree that the source would require compliance monitoring, reporting and recordkeeping requirements for the emission units contained in Section D.5. This determination was made in line with IDEM's Compliance Monitoring guidance published on IDEM's webpage that can be found here:

https://www.in.gov/idem/airpermit/files/assistance_compliance_monitoring_guidance.zip

Section D.5 consists of multiple processes each with multiple lines and emissions units (in each line). The Units in these sections are not subject to BACT OR LAER emission limitations, they are

not surface coating operations and are not subject to an emission limitation to avoid a state or federal applicable requirement. No individual process, line and emission unit emits more than 25 tons per year of any regulated pollutants. The process with the highest PM, PM10 and PM2.5 emissions in the D.5 section is the 4 LPW lines. These 4 lines have a combined PTE of 21.86 tons/year of PM, PM10 and PM2.5. Each of these lines consists of two welding units each controlled by their own individual baghouse. The maximum potential to emit of a single unit when taken individually is 2.73 tons per year of PM, PM10, and PM2.5. As such, based on the guidelines laid out in the document above, the units in Section D.5 are not subject to any compliance monitoring, reporting and recordkeeping requirements.

EPA Comment 9

9. There is a typo in Condition D.7.6(a). Please update the emission units from CLine1-CLine4 to CLine5-Cline8.

IDEM Response to EPA Comment 9

IDEM agrees with the recommended change, this can be seen in the additional changes section of the permit.

EPA Comment 10

10. Please check if emission units Packing Plant 1 and 2, Storage Plant 1 and 2, R&D Plant 1 and 2 are included in the emission unit list in the draft permit.

IDEM Response to EPA Comment 10

IDEM has reviewed the permit as requested. Section A.5 of the draft permit already included descriptions for Packing Plant 1 and 2, Storage Plant 1 and 2, R&D Plant 1. However, R&D Plant 2 was not found in the unit descriptions of the permit but has been added as suggested. This can be seen below.

...

A.5 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21):

Plant 1:

(a) One (1) electrolyte storage tank, identified as EST-1, approved in 2023 for construction, with a nominal capacity of 528 gallons and annual throughput of 1,569 gal/hr, using Activated Carbon Tower (CAT-06) as control, and exhausting to stack (S-6).

(b) One (1) used battery storage room, identified as USB1, approved in 2023 for construction, used for discharging used lithium-ion batteries, with a nominal capacity of 4.17 cells/hr, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5).

(c) One (1) used/recovered nmp storage tank, identified as NMPRT06, approved in 2023 for construction, with a nominal capacity of 528 gallons, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5).

(d) One (1) innovation process for research and development, identified as R&D**1**, uncontrolled, and exhausting indoors.

(e) One (1) wastewater treatment plant.

(f) One (1) diesel storage tank, identified as DST-1, approved in 2023 for construction, with a maximum capacity of 500 gallons, using no control, and exhausting to the atmosphere.

(g) One (1) Packing process, identified as Packing1, approved in 2024 for construction, exhausting indoors.

Plant 2:

(a) One(1) electrolyte storage tank, identified as EST-2, approved in 2024 for construction, with a maximum capacity of 528 gallons and annual throughput of 1,569 gal/hr, using Activated Carbon Tower (CAT-06) as control, and exhausting to stack (S-6).

(b) One (1) used battery storage room, identified as USB-2, approved in 2024 for construction, used for discharging used lithium-ion batteries, with a maximum capacity of 4.87 cells/hr, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5)

(c) One (1) innovation process for research and development, identified as R&D2, uncontrolled, and exhausting indoors.

(d) One (1) diesel storage tank, identified as DST-2, approved in 2024 for construction, with a maximum capacity of 500 gallons, using no control, and exhausting to the atmosphere.

(e) One (1) Packing process, identified as Packing2, approved in 2024 for construction, exhausting indoors.

(f) One (1) innovation process for research and development, identified as R&D2, uncontrolled, and exhausting indoors.

Additional Changes

IDEM, OAQ has decided to make additional revisions to the permit as described below, with deleted language as ~~strikeouts~~ and new language **bolded**.

(a) Updated testing requirements to remove testing for 326 IAC 6.5 as it was determined that it is currently unfeasible to accurately test for the parameters

(b) Inserted calibration language regarding instrumentation for the solvent recovery system along with failure detection language into the D.3.9, D.3.10, D.9.9 and D.9.10 sections of the permit. Renumbered f the record keeping requirements for D.3 and D.9.

(c) Corrected minor typographical errors.

....

D.1.6 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.1.1 **and** D.1.2~~, and D.1.3~~, not later than 180 days after startup of the emission units and associated controls associated with CLine1-CLine4, the Permittee shall perform PM, PM_{10}, $PM_{2.5}$, Nickel, and Cobalt testing on the stacks identified as " 01-PEF-03, 01-PEF-04 and 01-PEF-05" simultaneously utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

.....

D.2.5 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.2.1 ~~and D.2.2~~, not later than 180 days after startup of the emission units and controls associated with ALine1-Aline4, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$, testing of the stack**s** identified as "01-PEF-01 and 01-PEF-02" **simultaneously** utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

....

D.3.9 Solvent Recovery Tower Outlet Monitoring

....

(d) The instruments used for determining outlet VOC concentration shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every week or as recommended by the manufacturer.

D.3.10 Solvent recovery tower Failure Detection

In the event that a Solvent recovery tower failure has been observed:

(a) For a Solvent recovery tower controlling emissions from a process operated continuously, a failed unit and the associated process will be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a Solvent recovery tower controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

...

D.3.11~~0~~ Record Keeping Requirement

...

D.7.6 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.7.1~~,~~ **and** D.7.2, ~~and D.7.3~~, not later than 180 days after startup of the emission units and associated controls associated with CLine~~1~~5-CLine~~4~~8, the Permittee shall perform PM, PM_{10}, $PM_{2.5}$, Nickel, and Cobalt testing on the stacks identified as "02-PEF-03, 02-PEF-04 and 02-PEF-05 " simultaneously utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

...

D.8.5 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.8.1 ~~and D.8.2~~, not later than 180 days after startup of the emission units and associated controls associated with ALine5 to ALine8, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$, testing of the stacks identified as "02-PEF-01 and 02-PEF-02" simultaneously utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

...

D.9.9 Solvent Recovery Tower Outlet Monitoring

....

(d) The instruments used for determining outlet VOC concentration shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every every week or as recommended by the manufacturer.

D.9.10 Solvent Recovery Tower Failure Detection

In the event that a Solvent recovery tower failure has been observed:

(a) For a Solvent recovery tower controlling emissions from a process operated continuously, a failed unit and the associated process will be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a Solvent recovery tower controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

....

D.9.10~~1~~1 Record Keeping Requirement

...

D.11.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Anode Slitters	AS5-AS8	0.03 grain/dscf *
Cathode Slitters	CS5-CS8	0.03 grain/dscf *
Stackers	S5_1 to S5_32	0.03 grain/dscf *
	S6_1 to S6_32	
	S7_1 to S7_25	
	S8_1 to S8_25	
LPW welding	LPW5-1 to LPW5-2	0.03 grain/dscf *
	LPW6-1 to LPW6-2	
	LPW7-1 to LPW7-2	
	LPW8-1 to LPW8-2	
CanCap welding	CanCap5-1 to CanCap5-2	0.03 grain/dscf *
	CanCap6-1 to CanCap6-2	
	CanCap7-1 to CanCap7-2	
	CanCap8-1 to CanCap8-2	
seal pin welding	SPW5-1 to SPW5-2	0.03 grain/dscf *
	SPW6-1 to SPW6-2	
~~Taping machines~~	SPW7-1 to SPW7-2	0.03 grain/dscf *
~~frame side welding~~	SPW8-1 to SPW8-2	0.03 grain/dscf *

~~busbar welding~~ **Taping machines**	TM9-TM16	0.03 grain/dscf *
~~Frame end welding~~ **frame side welding**	FSW5-FSW8	0.03 grain/dscf *
busbar welding	**BW5-BW8**	**0.03 grain/dscf ***
Frame end welding	**FEW5-8**	**0.03 grain/dscf ***
Lime duct injection operation	LDI2	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

....

IDEM Contact

(a) If you have any questions regarding this permit, please contact Sidhant Paul, Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251, or by telephone at (317) 232-8219 or (800) 451-6027, and ask for Sidhant Paul or (317) 232-8219.

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Air Permits page on the Internet at: https://www.in.gov/idem/airpermit/public-participation/; and the Citizens' Guide to IDEM on the Internet at: https://www.in.gov/idem/resources/citizens-guide-to-idem/.

ATSD Appendix A: Emission Calculations
Total Emission Calculations

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Uncontrolled Potential to Emit (tons/yr)														
Plant Name	**PM**	**PM10**	**PM2.5**	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Methylene Diphenyl Diisocyante**	**Cobalt**	**Nickel**	**Hexane**	**Formaldehyde**	**Benzene**
Plant 1	426.61	420.81	410.57	1.23	53.28	63.82	70.07	72.95	0.03	24.75	47.25	0.40	0.29	0.02
Plant 2	415.11	414.39	410.54	1.23	53.28	63.81	70.07	72.95	0.03	24.75	47.25	0.40	0.29	0.02
Jaewon Plant 1	22.16	22.95	22.95	0.58	17.28	44.6	13.28	0.269						
Total Emissions	863.88	858.15	844.06	3.05	123.84	172.23	153.43	146.17	0.07	49.50	94.50	0.80	0.58	0.05
PSD Permit Threshold	250	250	250	250	250	250	250	25	10	10	10	10	10	10

Potential to Emit After Permit Issuance (tons/yr)														
Plant Name	**PM**	**PM10**	**PM2.5**	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Methylene Diphenyl Diisocyante**	**Cobalt**	**Nickel**	**Hexane**	**Formaldehyde**	**Benzene**
Plant 1	107.91	102.11	91.86	1.23	53.28	104.63	70.07	8.51	0.03	2.60	4.96	0.30	0.29	0.02
Plant 2	96.40	95.68	91.84	1.23	53.28	104.62	70.07	8.51	0.03	2.60	4.96	0.40	0.29	0.02
Jaewon Plant 1	6.83	7.62	7.62	0.58	17.28	16.33	13.28	0.27						
Total Emissions	211.14	205.41	191.32	3.05	123.84	225.58	153.43	17.29	0.07	5.20	9.92	0.70	0.57	0.05
PSD Permit Threshold	250	250	250	250	250	250	250	25	10	10	10	10	10	10

eFBA Documents at "A" Manufacturer Price Conference

Date: Monday, January 1, 2024

Location/Address: 1234 Main Street, Anytown, ST 12345

Nearest Intersection: Corner of 1st Ave. and Main St., Southwest

Parking: Lot A, Lot B, Lot C

EFBA No: Lot F, Lot G, Lot H

Restaurant: All Meals Served

Standardized Production to Start (sample)

Biohazardous Unit	RM	Mat'ls	Pallet #	Mfg.	Mat'ls	eGO	Cert.	Total Batch #	Multipurpose Hydrolyzed	Lubricant	Alcohol	Glycerin	Thermodelighted	Reference
Lubricant, Alcohol, Glycerin														
Lubricant, Alcohol, Glycerin	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ATSD Appendix A: Emission Calculations
PTE Summary

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45646-00053
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Uncontrolled Potential to Emit (tons/yr)

Emissions Unit	PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs**	Methylene Diphenyl Diisocyanate	Cobalt	Nickel	Hexane	Formaldehyde	Benzene
AnodeMix	152.31	151.31	151.31	-	-	0.33	-	0.00	0.00	0.00	0.00			
CMC Booth (#1-4)	0.34	0.34	0.34											
Anode Conductive Powder Booth (#1-4)														
CMC Silo (#1-4)	0.34	0.34	0.34											
Anode Conductive Powder Silo (#1-8)														
CMC Mixer (#1-12)	0.34	0.34	0.34											
CMC Storage Tank (#1-24)	0.00	0.00	0.00											
PD Mixer (#1-24)	38.33	38.33	38.33			0.33								
Anode Inlet (#1-16)	37.98	37.98	37.98											
Anode Silo (#1-16)	73.57	72.57	72.57											
Anode Mixer Hopper (#1-24)														
Storage Tank (#1-48)	0.00													
Coater Buffer Tank (#1-10)	0.00													
AnodeCoatDryIno	0.00	0.00	0.00	-	-	6.82	-	0.00	0.00	0.00	0.00			
Anode Coater/Dryer (#1-4)						6.82								
CathodeMix	227.63	227.63	227.63	-	-	6.3956	-	72.00	0.00	24.75	47.25			
Roller Rooths (#1-4)	0.63	0.63	0.63											
Binder Silos (#1-8)	0.63	0.63	0.63											
Binder Mixer (#1-8)	0.63	0.63	0.63			3.60								
Binder Storage Tank (#1-16)	-	-	-			3.36								
Cathode Inlet (#1-14)	56.25	56.25	56.25					24.00		8.25	15.75			
Cathode Silo (#1-14)	112.50	112.50	112.50					48.00		16.5	31.50			
Cathode Mixer Hopper (#1-14)														
NMP Rotoliz Tank (#1-4)	-	-	-			8.97E-03								
HD Mixers (#1-14)	57.00	57.00	57.00			1.74E-01								
EMR Buffer Tanks (#1-14)	-	-	-			1.06E-02								
Slurry Storage Tank (#1-28)	-	-	-			1.06E-02								
Coater Buffer Tank (#1-5)	-	-	-			1.06E-02								
CathodeCoat	0.00	0.00	0.00			40.81	-							
C-Coat1 to C-Coat4						40.81								
Slitting	1.59	1.59	1.59	-	-	-	-							
Anode Slitters (AS1-AS4)	1.91	1.91	1.91											
Cathode Coating (CS1-CS4)	0.39	0.39	0.39											
Electrode Total	382.52	382.52	382.52	0.00	0.00	54.94	0.00	72.00		24.75	47.25			
Assembly General	23.67	23.67	23.67	0.00	0.00	1.62		0.03	0.03			0.00	0.00	0.00
Assembly General	0.00	0.00	0.00			1.45		0.03	0.03					
Stacking (S1_1 to S4_25)	1.97	1.97	1.97											
LPW (LPW1-1 to LPW4-2)	21.52	21.52	21.52											
CAN-CAP WELDING (CanCap1-1 to CanCap4-2)	0.282	0.282	0.282											
ELECTROLYTE FILLING (EFM1-EFM32)						0.22								
Formation	0.38	0.38	0.38	0.00	0.00	2.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HAF FRONT (HAF1-HAF4)						2.61								
SEALING (SPW1-1 to SPW4-2)	8.37E-06	8.37E-06	8.37E-06											
Testing (TM-1 to TM-8)	0.3816	0.3816	0.3816											
Module Test	0.8092	0.81	0.81	-	-	1.26	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SD1- SD4, HBB1- HBB4, PSA1-PSA8 & CUS1-CUS6						1.26		0.00	0.00					
FSW1-4 , BW1-4 and FEW1-4	0.81	0.81	0.81											
Packing						1.26								
Packing						1.26								
Storage	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EST-1						0.26								
USED MAP Storage						0.009								
USB-1						0.003								
R&D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Innovation						0.00								
Utilities	0.77	3.10	3.09	1.23	53.28	1.82	70.07	0.85	0.00	0.00	0.00	0.40	0.29	0.02
Boilers (Boiler1-2)	0.20	0.82	0.82	0.06	5.37	0.50	9.02	0.203			2.25E-04	1.93E-01	8.05E-03	1.29E-05
Hot Water Heater (W-Heater1	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.22E-04	1.04E-01	4.35E-03	1.22E-05
Space Heating (S-Heater1-60)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.22E-04	1.04E-01	4.35E-03	1.22E-05
Emergency Generators (Emgen1-10)	0.13	1.28	1.28	0.01	29.39	0.39	49.48	0.427					2.73E-01	2.05E-03
FirePumps (F-Pump-1)	0.22	0.12	0.12	1.09	6.93	0.19	1.84	0.003					1.71E-04	1.68E-05
Diesel Storage Tank (DST-1)						0.002								
Maintenance	16.46	16.33	9.09	0.00	0.00	0.04	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Welding	0.01	0.01	0.01					5.92E-06						
Paint Booth	0.04	0.04	0.04			0.04		0.06						
Cooling towers	16.41	10.28	0.04											
Total Excluding Fugitives	426.61	429.91	419.57	1.23	53.28	63.82	70.07	72.95	0.03	24.75	47.25	0.40	0.29	0.02
Fugitive Emissions														
Paved Roads	21.55	4.31	1.06											
Total Fugitives	21.55	4.31	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

*Cathode Coating PTE is after Internal Solvent recovery towers

Source-Wide Total HAPs: 72.95 | 24.75 | 47.25 | Major Source for HAPS before controls

Limited Potential to Emit After Issuance (tons/yr)

Emissions Unit	PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs**	Methylene Diphenyl Diisocyanate	Cobalt	Nickel	Hexane	Formaldehyde	Benzene
AnodeMix	38.33	38.33	38.33	-	-	0.33	-	0.00	0.00	0.00	0.00			
CMC Booth (#1-4)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
Anode Conductive Powder Booth (#1-4)				-	-	-	-	-	-	-	-	-	-	-
CMC Silo (#1-4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anode Conductive Powder Silo (#1-8)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
CMC Mixer (#1-12)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
CMC Storage Tank (#1-24)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-
PD Mixer (#1-24)	9.58	9.58	9.58	-	-	0.33	-	-	-	-	-	-	-	-
Anode Inlet (#1-16)	9.50	9.50	9.50	-	-	-	-	-	-	-	-	-	-	-
Anode Silo (#1-16)	18.39	18.39	18.39	-	-	-	-	-	-	-	-	-	-	-
Anode Mixer Hopper (#1-24)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-
Storage Tank (#1-48)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-
Coater Buffer Tank (#1-10)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-
AnodeCoatDryIno	0.00	0.00	0.00	-	-	6.82	-	0.00	0.00	0.00	0.00			
Anode Coater/Dryer (#1-4)						6.82								
CathodeMix	23.99	23.99	23.99	-	-	4.59	-	7.56	0.00	2.60	4.96			
Roller Rooths (#1-4)	0.07	0.07	0.07			-		0.00		0.00	0.00			
Binder Silos (#1-8)	0.07	0.07	0.07			-		0.00		0.00	0.00			
Binder Mixer (#1-8)	0.07	0.07	0.07			3.60		0.00		0.00	0.00			
Binder Storage Tank (#1-16)	0.00	0.00	0.00			0.98		0.00		0.00	0.00			
Cathode Inlet (#1-14)	4.91	4.91	4.91			-		1.93		0.87	1.64			
Cathode Silo (#1-14)	11.81	11.81	11.81			-		5.04		1.73	3.31			
Cathode Mixer Hopper (#1-14)						-								
NMP Rotoliz Tank (#1-4)						0.01		0.00		0.00	0.00			
HD Mixers (#1-14)	4.99	4.99	4.99			0.17		0.05		0.00	0.00			
EMR Buffer Tanks (#1-14)	0.00	0.00	0.00			0.01		0.00		0.00	0.00			
Slurry Storage Tank (#1-28)	0.00	0.00	0.00			0.01		0.00		0.00	0.00			
Coater Buffer Tank (#1-5)	0.00	0.00	0.00			0.01		0.00		0.00	0.00			
CathodeCoat	0.00	0.00	0.00			41.62	-							
C-Coat1 to C-Coat4 & SRT-01 to SRT-04						41.62								
Slitting	1.59	1.59	1.59	-	-	-	-							
Anode Slitters (AS1-AS4)	1.91	1.91	1.91			-								
Cathode Coating (CS1-CS4)	0.39	0.39	0.39			-								
Electrode Total	63.92	63.92	63.92	0.00	0.00	53.73	0.00	7.56		2.60	4.96			
Assembly General	23.67	23.67	23.67	0.00	0.00	1.62		0.03	0.03			0.00	0.00	0.00
Assembly General						1.40	0.00	0.03	0.03					
Stacking (S1_1 to S4_25)	1.97	1.97	1.97	0.00	0.00	0.00	0.00	0.00	0.00					
LPW (LPW1-1 to LPW4-2)	21.52	21.52	21.52	0.00	0.00	0.00	0.00	0.00	0.00					
CAN-CAP WELDING (CanCap1-1 to CanCap4-2)	0.28	0.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00					
ELECTROLYTE FILLING (EFM1-EFM32)	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00					
Formation	0.3816	0.3816	0.3816	-	-	2.61	-	0.00						
HAF FRONT (HAF1-HAF4)	0.00	0.00	0.00	-	-	2.61	-							
SEALING (SPW1-1 to SPW4-2)	8.37E-06	8.37E-06	8.37E-06	-	-	-	-							
Testing (TM-1 to TM-8)	0.3816	0.3816	0.3816	-	-	-	-							
Module Test	0.8092	0.81	0.81	-	-	1.26	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SD1- SD4, HBB1- HBB4, PSA1-PSA8 & CUS1-CUS6	-	-	-			1.26		0.00	0.00					
FSW1-4 , BW1-4 and FEW1-4	0.81	0.81	0.81			-								
Packing	-	-	-	-	-	1.26	-	-	-	-	-	-	-	-
Packing	-	-	-	-	-	1.26								
Storage	-	-	-	-	-	0.27	-	-						
EST-1	-	-	-	-	-	0.26								
USED MAP Storage	-	-	-	-	-	0.009								
USB-1	-	-	-	-	-	0.003								
R&D	-	-	-	-	-	0.00	-	-						
Innovation	-	-	-	-	-	0.00								
Utilities	0.77	3.10	3.09	1.23	53.28	1.82	70.07	0.85	0.00	0.00	4.69E-04	0.30	0.29	0.02
Boilers (B	0.20	0.82	0.82	0.06	5.37	0.50	9.02	0.203			2.25E-04	1.93E-01	8.05E-03	1.29E-05
Hot Water Heater	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.22E-04	1.04E-01	4.35E-03	1.22E-05
Space Heating (SH)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.22E-04	0.00E+00	0.00E+00	0.00E+00
Emergency Generators (EG)	0.13	1.28	1.28	0.01	29.39	0.39	49.48	0.427					2.73E-01	2.05E-03
FirePumps	0.22	0.12	0.12	1.09	6.93	0.19	1.84	0.003					1.71E-04	1.68E-05
Diesel Storage Tank (DST-1)						0.002								
Maintenance	16.46	16.33	9.09			0.04	0.00	0.06						
Welding	0.01	0.01	0.01			-		5.92E-06						
Paint Booth	0.04	0.04	0.04	-	-	0.04	-	0.06						
Cooling towers	16.41	10.28	0.04											
Total Excluding Fugitives	107.90	109.11	93.86	1.23	53.28	104.81	70.07	8.51	0.03	2.6	4.96	0.30	0.29	0.02
Fugitive Emissions														
Paved Roads	21.55	4.31	1.06											
Total Fugitives	21.55	4.31	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

Source-Wide Total HAPs: 8.51 | 2.60 | 4.96 | Major Source for HAPS before controls

*PM2.5 listed is direct PM2.5
**Fugitive HAP emissions are always included in the source-wide emissions
PTE of AnodeMix, CathodeMix, and cathode coating are after limits

ATSD Appendix A: Emission Calculations
PTE Summary Plant 2

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45646-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Uncontrolled Potential to Emit (tons/yr)

Emissions Unit	PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs**	Methylene Diphenyl Diisocyanate	Cobalt	Nickel	Hexane	Formaldehyde	Benzene
Anodelite	**163.31**	**163.31**	**163.31**			**0.33**		**0.00**	**0.00**	**0.00**	**0.00**			
CMC Booth (#5-8)	0.34	0.34	0.34											
Anode Conductive Powder Booth (#5-8)														
CMC Silo (#13-24)	0.34	0.34	0.34											
CMC Mixer (#13-24)	0.34	0.34	0.34											
Anode Silo (#17-32)	75.97	75.97	75.97											
Anode Mixer Hopper (#25-28)														
Storage Tank (#69-92)														
Cooler Buffer Tank (#1-20)														
Anode Coat/Drying	**0.00**	**0.00**	**0.00**	-	-	**6.82**	-	**0.00**	**0.00**	**0.00**	**0.00**			
Anode Coater/Dryer (#5-8)						6.82								
Cathodelite	**227.63**	**227.63**	**227.63**	-	-	**0.0052**	-	**72.00**	**0.00**	**24.75**	**47.25**			
Binder Booths (#5-8)	0.63	0.63	0.63					-						
Binder Silos (#9-16)	0.63	0.63	0.63					-						
Binder Mixer (#9-16)	0.63	0.63	0.63			1.45		-						
Binder Storage Tank (#73-77)	-	-	-			3.38		-						
Cathode Inlet (#15-28)	96.25	96.25	96.25					24.00		8.25	15.75			
Cathode Silo (#75-28)	112.50	112.50	112.50					48.00		16.5	31.5			
Cathode Mixer Hopper (#29,39)														
MAP Supply Tank (#5-8)	-	-	-			6.97E-03								
HD Mixers (#35-38)	97.00	97.00	97.00			1.74E-01								
RMB Buffer Tanks (#74-76)						1.06E-03								
Slurry Storage Tank (#69-96)						1.06E-03								
Cooler Buffer Tank (#5-10)						1.06E-03								
Cathode Coat	**0.00**	**0.00**	**0.00**	-	-	**40.91**								
C-Coat® to C-Coat® & SRT-05 to SRT-08						40.91								
Slitting	**1.59**	**1.59**	**1.59**											
Anode Slitting (A05-A08)	1.21	1.21	1.21											
Cathode Slitting (A05-A08)	0.39	0.39	0.39											
Electrolyte Total	**393.53**	**393.53**	**393.53**	**0.00**	**0.00**	**54.94**	**0.00**	**72.00**	**0.00**	**24.75**	**47.25**	**0.00**	**0.00**	**0.00**
Assembly	**23.67**	**23.67**	**23.67**	**0.00**	**0.00**	**1.62**		**0.93**	**0.93**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Assembly General	1.44E-06	8.40E-06	0.00			1.62		0.93	0.93					
Stainless (SS_1 to SS_20)	1.57	1.57	1.57											
LPW (LPW15-1 to LPW18-2)	21.92	21.92	21.92											
CAN-CAP WELDING (CanCap5-1 to CanCap8-2)	0.282	0.282	0.282											
ELECTROLYTE FILLING (EFM25-EFM54)						0.22								
Formation	**0.3016**	**0.3016**	**0.3016**	**0.0000**	**0.0000**	**2.6063**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**
H/C FRONT (H5/C5-H8/C8)						2.61								
SEALING (SPW5-1 to SPW8-2)	8.10E-06	8.10E-06	8.10E-06											
Tanks (TK4 to TK8-10)	0.3016	0.3016	0.3016											
Module Test	**0.91**	**0.91**	**0.91**	**0.00**	**0.00**	**1.26**		**0.00**	**0.00**					
SDS- SDB HBS- HBB FSAS-FSAV5 & CUS5-CUS16						1.26		0.00	0.00					
FSW5-8 & SW5-8 FEW5-8	0.91	0.91	0.91											
Packing						1.26								
Packing						1.26			0.00325625					
Storage						**0.27**	-	-						
EST-2						0.26								
LEAD MAP Storage						0.008								
USB-2						0.003								
R&D						**0.00**	-	-						
Innovation						0.00								
Utilities	**0.77**	**3.10**	**3.09**	**1.23**	**53.38**	**1.92**	**70.67**	**0.85**	**0.00**	**0.00**	**4.69E-04**	**4.62E-01**	**0.29**	**0.02**
Boilers (Boiler1-4)	0.30	0.83	0.83	0.06	4.37	0.45	6.07	0.3015			1.39E-04	1.03E-01	8.09E-03	1.39E-04
Hot Water Heater (W-Heater2)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.1000			1.20E-04	1.04E-01	4.35E-03	1.20E-04
Space Heating (S-Heating5-120)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.1000			1.20E-04	1.04E-01	4.35E-03	1.20E-04
Emergency Generator (Emergen15-30)	0.15	1.39	1.39	0.01	29.56	0.39	45.45	0.2477					2.73E-04	2.99E-03
FirePump (F-Pump-2)	0.22	0.12	0.12	1.09	6.93	0.19	1.84	0.0503					1.77E-04	1.68E-03
Diesel Storage Tank (DST-2)						0.00E+00								
Maintenance	**0.56**	**2.80**	**0.06**			**0.04**	**0.03**	**0.06**						
Welding	0.52	0.53	0.53					4.70E-04						
Paint Booth	0.04	0.04	0.04	-	-	0.04	-	0.06						
Cooling towers	2.90	7.69	0.01											
Total Excluding Fugitives	**415.1**	**414.4**	**410.5**	**1.2**	**53.3**	**63.8**	**70.1**	**72.9**	**0.9**	**24.8**	**47.3**	**0.4**	**0.3**	**0.0**
Fugitive Emissions														
Paved Roads	21.5	4.3	1.1											
Total Fugitives	**21.5**	**4.3**	**1.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**			

*Cathode Coating PTE is after Integral Solvent recovery towers
* PM2.5 listed is direct PM2.5*
**Fugitive HAP emissions are always included in the source-wide emissions

Source-Wide Total HAPs: 72.95 | 24.75 | 47.25 | Major Source for HAPS before controls

Limited Potential to Emit After Issuance (tons/yr)

Emissions Unit	PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs**	Methylene Diphenyl Diisocyanate	Cobalt	Nickel	Hexane	Formaldehyde	Benzene
Anodelite	**38.33**	**38.33**	**38.33**	-	-	**0.33**	-	**0.00**	**0.00**	**0.00**	**0.00**			
CMC Booth (#5-8)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
Anode Conductive Powder Booth (#5-8)				-	-	-	-	-	-	-	-	-	-	-
CMC Silo (#13-24)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
CMC Mixer (#13-24)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
MAP Supply Tank (#5-8)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HD Mixers (#35-38)	0.54	0.54	0.54	-	-	0.17	-	-	-	-	-	-	-	-
Anode Inlet (#17-32)	4.32	4.32	4.32	-	-	-	-	-	-	-	-	-	-	-
Anode Silo (#17-32)	18.99	18.99	18.99	-	-	-	-	-	-	-	-	-	-	-
Anode Mixer Hopper (#25-28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Tank (#69-92)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cooler Buffer Tank (#1-20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anode Coat/Drying	-	-	-	-	-	**6.82**	-	**0.00**	**0.00**	**0.00**	**0.00**			
Anode Coater/Dryer (#5-8)				-	-	6.82								
Cathodelite	**23.90**	**23.90**	**23.90**	-	-	**0.99**	-	**7.56**	**0.00**	**2.60**	**4.96**			
Binder Booths (#5-8)	0.07	0.07	0.07	-	-	-	-	-						
Binder Silos (#9-16)	0.07	0.07	0.07	-	-	1.45	-	-						
Binder Storage Tank (#73-77)	-	-	-	-	-	3.38	-	-						
Cathode Inlet (#15-28)	5.91	5.91	5.91	-	-	-	-	2.52		0.87	1.65			
Cathode Silo (#75-28)	11.81	11.81	11.81	-	-	-	-	5.04		1.73	3.31			
Cathode Mixer Hopper (#29,39)				-	-	-	-							
MAP Supply Tank (#5-8)	-	-	-	-	-	6.97E-03	-	-		-	-			
HD Mixers (#35-38)	5.99	5.99	5.99	-	-	0.17	-	-		-	-			
RMB Buffer Tanks (#74-76)	-	-	-	-	-	0.00	-	-		-	-			
Slurry Storage Tank (#69-96)	-	-	-	-	-	0.00	-	-		-	-			
Cooler Buffer Tank (#5-10)	-	-	-	-	-	0.00	-	-		-	-			
Cathode Coat	-	-	-	-	-	**81.82**	-							
C-Coat® to C-Coat® & SRT-05 to SRT-08	-	-	-	-	-	81.82	-							
Slitting	**1.59**	**1.59**	**1.59**	-	-	-	-							
Anode Slitting (#5-8)	1.21	1.21	1.21	-	-	-	-							
Cathode Slitting (#5-8)	0.39	0.39	0.39	-	-	-	-							
Electrolyte Total	**63.82**	**63.82**	**63.82**	**0.00**	**0.00**	**88.74**	**0.00**	**7.56**		**2.60**	**4.96**			
Assembly General	**23.67**	**23.67**	**23.67**	**0.00**	**0.00**	**1.62**		**0.93**	**0.93**			**0.00**	**0.00**	**0.00**
Assembly General	0.00	0.00	0.00	-	-	1.62		**0.93**	**0.93**					
Stainless (SS_1 to SS_20)	1.57	1.57	1.57	-	-	-	-	-	-					
LPW (LPW15-1 to LPW18-2)	21.92	21.92	21.92	-	-	-	-	-	-					
CAN-CAP WELDING (CanCap5-1 to CanCap8-2)	0.282	0.282	0.282	-	-	-	-	-	-					
ELECTROLYTE FILLING (EFM25-EFM54)	-	-	-	-	-	0.22	-	-	-					
Formation	**0.3016**	**0.3016**	**0.3016**	-	-	**2.60**	-	**0.00**						
H/C FRONT (H5/C5-H8/C8)	-	-	-	-	-	2.61	-							
SEALING (SPW5-1 to SPW8-2)	0.0000	0.0000	0.0000	-	-	-	-							
Tanks (TK4 to TK8-10)	0.3016	0.3016	0.3016	-	-	-	-							
Module Test	**0.91**	**0.91**	**0.91**	**0.00**	**0.00**	**1.26**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
SDS- SDB HBS- HBB FSAS-FSAV5 & CUS5-CUS16	-	-	-	-	-	1.26	-	0.00	0.00					
FSW5-8 & SW5-8 FEW5-8	0.91	0.91	0.91	-	-	-	-							
Packing	-	-	-	-	-	**1.26**	-	-	-	-	-	-	-	-
Packing	-	-	-	-	-	1.26	-	-	-					
Storage	-	-	-	-	-	**0.27**	-	-						
EST-2	-	-	-	-	-	0.26	-	-						
LEAD MAP Storage	-	-	-	-	-	0.008	-	-						
USB-2	-	-	-	-	-	0.003	-	-						
R&D	-	-	-	-	-	**0.00**	-	-						
Innovation	-	-	-	-	-	0.00	-	-						
Utilities	**0.77**	**3.10**	**3.09**	**1.23**	**53.38**	**1.92**	**70.67**	**0.85**	**0.00E+00**	**0.00E+00**	**4.69E-04**	**4.62E-01**	**2.93E-01**	**2.32E-02**
Boilers (Boiler1-4)	0.30	0.83	0.83	0.06	4.37	0.45	6.07	0.3015			1.39E-04	1.03E-01	8.09E-03	1.39E-04
Hot Water Heater (W-Heater2)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.1000			1.20E-04	1.04E-01	4.35E-03	1.20E-04
Space Heating (S-Heating5-120)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.1000			1.20E-04	1.04E-01	4.35E-03	1.20E-04
Emergency Generator (Emergen15-30)	0.15	1.39	1.39	0.01	29.56	0.39	45.45	0.2477					2.73E-04	2.99E-03
FirePump (F-Pump-2)	0.22	0.12	0.12	1.09	6.93	0.19	1.84	0.0503					1.77E-04	1.68E-03
Diesel Storage Tank (DST-2)						0.00E+00								
Maintenance	**0.56**	**2.80**	**0.06**			**0.04**	**0.03**	**0.06**						
Welding	0.52	0.53	0.53					4.70E-04						
Paint Booth	0.04	0.04	0.04	-	-	0.04	-	0.06						
Cooling towers	2.90	7.69	0.01											
Total Excluding Fugitives	**95.49**	**95.69**	**91.94**	**1.23**	**53.3**	**104.6**	**70.1**	**8.51**	**0.93**	**2.6**	**4.96**	**0.40**	**0.29**	**0.02**
Fugitive Emissions														
Paved Roads	21.55	4.31	1.08											
Total Fugitives	**21.55**	**4.31**	**1.08**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**			

* PM2.5 listed is direct PM2.5*
**Fugitive HAP emissions are always included in the source-wide emissions
PTE of Anodelite, Cathodelite, and cathode coating are after limits

Source-Wide Total HAPs: 8.51 | 2.60 | 4.96 | Major Source for HAPS before controls

ATSD Appendix A: Emiss nission Calculations
PTE Summary Plant 2

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Uncontrolled Potential to Emit (tons/yr)														
Emissions Unit	**PM**	**PM10**	**PM2.5 ***	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs****	**Cobalt**	**Nickel**	**Hexane**	**Formaldehyde**	**Benzene**	**Methylene Diphenyl Diisocyante**
CMC Booth (#5-8) & Anode Conductive Powder Booth (#5-8)	0.34	0.34	0.34											
CMC Silo (#5-8) & Anode Conductive Powder Silo (#9-16)	0.34	0.34	0.34											
CMC Mixer (#13-24)	0.34	0.34	0.34											
CMC Storage Tank (#25-48)														
PD Mixer (#25-48)	38.33	38.33	38.33			0.33								
Anode Inlet (#17-32)	37.98	37.98	37.98											
Anode Silo (#17-32) & Anode Mixer Hopper (#25-48)	75.97	75.97	75.97											
Storage Tank (#49-96)														
Coater Buffer Tank (#11-20)														
Binder Booths (#5-8)	0.63	0.63	0.63					-						
Binder Silos (#9-16)	0.63	0.63	0.63					-						
Binder Mixer (#9-16)	0.63	0.63	0.63			3.40		-						
Binder Storage Tank (#17-32)	-	-	-			3.38		-						
Cathode Inlet (#15-28)	56.25	56.25	56.25					24.00	8.25	15.75				
Cathode Silo (#15-28) & Cathode Mixer Hopper (#15-28)	112.50	112.50	112.50					48.00	16.5	31.5				
NMP Supply Tank (#5-8)	-	-	-			6.97E-03								
HD Mixers (#15-28)	57.00	57.00	57.00			1.74E-01								
EMR Buffer Tanks (#15-28)						1.06E-02								
Slurry Storage Tank (#29-56)						1.06E-02								
Coater Buffer Tank (#6-10)						1.06E-02								
Anode Coater/Dryer (#5-8)						6.82								
C-Coat5 to C-Coat8 & SRT-05 to SRT-08						40.81								
Anode Slitting (AS5-AS8)	1.21	1.21	1.21											
Cathode Slitting (AS5-AS8)	0.39	0.39	0.39											
Assembly General						1.40		0.03						0.03
Stacking (S5_1 to S8_25)	1.57	1.57	1.57											
LPW (LPW5-1 to LPW8-2)	21.82	21.82	21.82											
CAN-CAP WELDING (CanCap5-1 to CanCap8-2)	0.282	0.282	0.282											
ELECTROLYTE FILLING (EFM33-EFM64)						0.22	-							
HVC FRONT (HVC5-HVC8)						2.61	-							
SEALING (SPW5-1 to SPW8-2)	8.37E-06	8.37E-06	8.37E-06											
Taping (TM-8 to TM-16)	0.3816	0.3816	0.3816											
SD5- SD8, HB5- HBB8, PSA9-PSA16 & CUS9-CUS16						1.26		0.00						0.0033
FSW5-8 & BW5-8, FEW5-8	0.81	0.81	0.81											
Packing						1.26								0.0033
EST-2						0.26								
USED NMP Storage						0.008								
USB-2						0.003								
Innovation						0.00								
Boilers (Boiler3-4)	0.20	0.82	0.82	0.06	5.37	0.59	9.02	0.203		2.25E-04	1.93E-01	8.05E-03	2.25E-04	
Hot Water Heater (W-Heating2)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109		1.22E-04	1.04E-01	4.35E-03	1.22E-04	
Space Heating (S-Heating61-120)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109		1.22E-04	1.04E-01	4.35E-03	1.22E-04	
Emergency Generators (Emgen11-20)	0.13	1.28	1.28	0.01	29.39	0.39	49.48	0.427				2.73E-01	2.10E-02	
FirePump (F-Pump-2)	0.22	0.12	0.12	1.09	6.93	0.19	1.84	0.003				1.71E-04	1.68E-03	
Diesel Storage Tank (DST-2)						2.37E-03								
Welding	0.01	0.01	0.01					6.50E-04						
Paint Booth	0.04	0.04	0.04			0.04		0.06						
Cooling towers (CWT27-CWT30)	6.90	3.86	0.01											
FEW1-FEW4	0.36	0.36	0.36											
Boilers (1-2)	0.20	0.82	0.82	0.06	5.37	0.59	9.02	0.20		0.00	0.19	0.00	0.00	
Total PTE Before Controls of the New Emission Units:	415.67	414.39	410.54	1.23	53.28	63.82	70.07	72.95	24.75	47.25	0.40	0.29	0.02	0.04

	PTE Increases Due to the Modification (ton/year)									
	PM	**PM_{10}**	**$PM_{2.5}$***	**SO_2**	**NO_X**	**VOC**	**CO**	**Total HAPs**	**Cobalt**	**Nickel**
Total PTE Before Controls of the New Emission Units	415.67	414.39	410.54	1.23	53.28	63.82	70.07	72.95	24.75	47.25
Total PTE Increase of the Modified Emission Unit(s)/Process	22.91	22.91	22.91	0	0	0.19	0	0	0	0
Total PTE of the Modification	**438.58**	**437.30**	**433.45**	**1.23**	**53.28**	**64.01**	**70.07**	**72.95**	**24.75**	**47.25**

*$PM_{2.5}$ listed is direct $PM_{2.5}$.
**Single highest HAP.

ATSD Appendix A: Emission Calculations
Modification Summary Plant 1

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Proccess/ Emission Unit		PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs	Cobalt	Nickel
CMC Booth (#1-4) & Anode Conductive Powder Booth (#1-4)	Before Modification	19.792	19.792	19.792							
	After Modification	0.344	0.344	0.344							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
CMC Silo (#1-4) & Anode Conductive Powder Silo (#1-8)	Before Modification	19.792	19.792	19.792							
	After Modification	0.344	0.344	0.344							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
CMC Mixer (#1-12)	Before Modification	3.125	3.125	3.125							
	After Modification	0.344	0.344	0.344							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
CMC Storage Tank (#1-24)	Before Modification	0.000	0.000	0.000							
	After Modification	0.000	0.000	0.000							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
PD Mixer (#1-24)	Before Modification	394.792	394.792	394.792			2.807				
	After Modification	38.326	38.326	38.326			0.326				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Anode Inlet (#1-16)	Before Modification	375.000	375.000	375.000							
	After Modification	37.983	37.983	37.983							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Anode Silo (#1-16) & Anode Mixer Hopper (#1-24)	Before Modification	750.000	750.000	750.000							
	After Modification	75.965	75.965	75.965							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Storage Tank (#1-48)	Before Modification	0.000	0.000	0.000							
	After Modification	0.000	0.000	0.000							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Coater Buffer Tank (#1-10)	Before Modification	0.000	0.000	0.000							
	After Modification	0.000	0.000	0.000							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Booths (#1-4)	Before Modification	5.625	5.625	5.625							
	After Modification	0.625	0.625	0.625							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Silos (#1-8)	Before Modification	5.625	5.625	5.625							
	After Modification	0.625	0.625	0.625							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Mixer (#1-8)	Before Modification	5.625	5.625	5.625			3.397				
	After Modification	0.625	0.625	0.625			3.397				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Storage Tank (#1-16)	Before Modification						3.374				
	After Modification	0.000	0.000	0.000			3.374				
	PTE Increase	-	-	-	-	-	-	-			
Cathode Inlet (#1-14)	Before Modification	226.875	226.875	226.875					96.000	33.000	63.000
	After Modification	56.250	56.250	56.250					24.000	8.250	15.750
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Cathode Silo (#1-14) & Cathode Mixer Hopper (#1-14)	Before Modification	453.750	453.750	453.750					192.000	66.000	126.000
	After Modification	112.500	112.500	112.500					48.000	16.500	31.500
	PTE Increase	-	-	-	-	-	-	-	-	-	-
HD Mixers (#1-14)	Before Modification	232.500	232.500	232.500			0.011				
	After Modification	57.000	57.000	57.000			0.174				
	PTE Increase	-	0	0	0	0	0.163	0	0	0	0
EMR Buffer Tanks (#1-14)	Before Modification	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
	After Modification	0.000	0.000	0.000	0.000	0.000	0.011	0.000			
	PTE Increase	-	-	-	-	-	0.011	-			
Slurry Storage Tank (#1-28)	Before Modification	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
	After Modification						0.011				
	PTE Increase	-	-	-	-	-	0.011	-			
Coater Buffer Tank (#1-5)	Before Modification	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
	After Modification						0.011				
	PTE Increase	-	-	-	-	-	0.011	-	-	-	-
A-coat1 to A-coat4	Before Modification						55.824				
	After Modification						6.815				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
C-coat1 to C-coat4	Before Modification						180.500				
	After Modification						40.811				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Anode Slitting (AS1-AS4)	Before Modification	1.206	1.206	1.206							
	After Modification	1.21	1.21	1.21							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Cathode Coating (CS1-CS4)	Before Modification	0.388	0.388	0.388							
	After Modification	0.388	0.388	0.388							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Assembly General	Before Modification						6.898		3.00E-01		
	After Modification						1.397		3.00E-02		
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Stacking (S1_1 to S4_25)	Before Modification	1.595	1.595	1.595							
	After Modification	1.567	1.567	1.567							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
LPW (LPW1-1 to LPW4-2)	Before Modification	0.015	0.015	0.015							
	After Modification	21.820	21.820	21.820							
	PTE Increase	21.805	21.805	21.805							
CAN-CAP WELDING (CanCap1-1 to CanCap4-2)	Before Modification	0.004	0.004	0.004							
	After Modification	0.282	0.282	0.282							
	PTE Increase	0.278	0.278	0.278							
ELECTROLYTE FILLING (EFM1-EFM32)	Before Modification						0.443				
	After Modification						0.222				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
HVC FRONT (HVC1-HVC4)	Before Modification						5.210				
	After Modification						2.606				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
SEALING (SPW1-1 to SPW4-2)	Before Modification	4.68E-04	4.68E-04	4.68E-04							
	After Modification	8.37E-06	8.37E-06	8.37E-06							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Taping (TM-1 to TM-8)	Before Modification	0.089	0.089	0.089							
	After Modification	0.382	0.382	0.382							
	PTE Increase	0.293	0.293	0.293	-	-	-	-	-	-	-
SD1- SD4, HBB1- HBB4, PSA1-PSA8 & CUS1-CUS8	Before Modification						5.052		1.63E-02		
	After Modification						1.260		3.26E-03		
	PTE Increase	-	-	-	-	-	-	-	-	-	-
FSW1-4 , BW1-4	Before Modification	0.007	0.007	0.007							
	After Modification	0.543	0.543	0.543							
	PTE Increase	0.535	0.535	0.535	-	-	-	-	-	-	
Packing	Before Modification						5.052				
	After Modification						1.260				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Cooling towers (CWT1-CWT26)	Before Modification	73.643	73.643	73.643							
	After Modification	18.411	10.281	0.039							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Hot Water Heater	Before Modification	0.122	0.490	0.490	0.039	6.441	0.354	5.411	0.122		
	After Modification	0.110	0.441	0.441	0.035	5.797	0.319	4.870	0.109		
	PTE Increase	-	-	-	-	-	-	-	-	-	-
		22.911	22.911	22.911	0.000	0.000	0.195	0.000	0.000	0.000	0.000

ATSD Appendix A: Emission Calculations
CATHODEMIX plant 1

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID CATHODEMIX
Cline 1-4

MATERIALS SPECIFICATION AND THROUGHPUT

Material Name[1]	Process	Physical Characteristics						Process Information			Notes
		Density	Molecular Weight	VP	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	0	0	86	
Nickel Cobalt Aluminium Oxide (NCA)	Cathode Mixing, Cathode coating	38.66	244.15	0.00	0.00	0.00%	100.00%	2,327,797	45,000	86	
PVDF (Polyvinylene Fluoride)	Cathode Mixing, Cathode coating	14.54	64.03	517.30	0.00	0.00%	100.00%	68,770	500	86	
LCNT - Binder Solution for Cathode Mix (TDS-L)	Binder Solution (Cathode)	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450	86	
Oxalic Acid Cathode Additive	HD mixer (Additive)	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25	0	
NMP (N-Methyl-2-Pyrrolidone)	Cathode mixing & coating	8.62	99.13	0.00	8.62	100.00%	0.00%	0	0	104	

[1]This is the list of utilized materials is based on comparable facilities ibased on the Samsung-SDI Hungary Planti. 3,672,316
4,873,587.98

VOC AND HAP EMISSIONS

	CATHODE MIX TANKS							VOC Emissions[2], Uncontrolled				ACT Control Efficiency[3]	VOC Emissions[2], Controlled			
	Tank Types	Contents	Capacity (gal)	Combined Throughput (gal)[4]	Quantity	Tank Throughput (gal)	EF Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr	%	tank lb/yr	lb/hr	lb/yr	ton/yr
X	Binder Mixer Tanks	NMP & PVDF	528	15,009,515	8	1,876,189	TankESP	849.17	0.78	######	3.40		254.75	0.23	2,038.01	1.02
X	Binder Storage Tanks	NMP & PVDF	528	15,009,515	16	938,095	TankESP	421.77	0.77	######	3.37		126.53	0.23	2,024.48	1.01
X	Coater Buffer Tanks	Cathode Slurry	528	22,014,621	4	5,503,655	TankESP	5.32	2.43 E-03	21.27	#####		1.60	7.28 E-04	6.38	3.19 E-03
X	Diesel Tanks	Diesel	500	372,000	1	372,000	TankESP	4.74	5.41 E-04	4.74	#####		1.42	1.62 E-04	1.42	7.11 E-04
X	EMF Buffer Tanks	Cathode Slurry	528	22,014,621	14	1,572,473	TankESP	1.52	2.43 E-03	21.24	#####	70%	0.46	7.28 E-04	6.37	3.19 E-03
X	HD Mixer Tanks	NMP, PVDF, Oxalic Acid, Binder Soln, NCA (Cathode Slurry)	634	22,014,621	14	1,572,473	TankESP	24.79	0.04	347.09	0.17		7.44	0.01	104.13	0.05
X	Used NMP Tanks	Used NMP	7,925	14,361,805	2	7,180,903	TankESP	7.58	1.73 E-03	15.16	#####		2.27	5.19 E-04	4.55	2.27 E-03
X	NMP Storage Tanks (ST1 and ST2)	Raw NMP	5,283	14,361,805	2	7,180,903	TankESP	6.97	1.59 E-03	13.95	#####		2.09	4.78 E-04	4.18	2.09 E-03
	Slurry Storage Tank	Cathode Slurry	528	22,014,621	28	786,236	TankESP	0.76	2.43 E-03	21.24	#####		0.23	7.28 E-04	6.37	3.19 E-03
	Total for all Units			**147,173,123**	**89**	**26,196,690**		**1,322.62**	**1.60**	**######**	**6.99**		**396.78**	**0.48**	**4,195.90**	**2.10**

[2]Tank VOC emissions calculated using Breeze TankESP software. 17.22148092
[3]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).

[5]HAP emissions lb/yr1 = VOC emissions lb/yr1 x HAP content in material (%)

TankESP Throughput: Data Source:

PARTICULATE EMISSIONS

CATHODE MIXING				Particulate Emissions, Uncontrolled			BF Control Efficiency	Particulate Emissions, Controlled			Nickel Emissions, Uncontrolled			Nickel Emissions, Controlled			Cobalt Emissions, Uncontrolled			Cobalt Emissions, Controlled		
Powder Material Used in Cathode Mixing	Total Annual Throughput (tons)	EF Basis	PM Emission Factor	lb/hr	lb/yr	ton/yr	%	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr
Nickel Cobalt Aluminium Oxide (NCA)	45,000	Similar Facility	0.5%	51.37	450,000.00	225.00	98%	1.03	######	4.50	10.79	94,500.00	47.25	0.22	1,890.00	0.95	5.65	49,500.00	24.75	0.11	990.00	0.50
PVDF (Polyvinylene Fluoride)	500	Similar Facility	0.5%	0.57	5,000.00	2.50		0.01	100.00	0.05	--	--	--	--	--	--	--	--	--	--	--	--
Oxalic Acid Cathode Additive	25		0.5%	0.03	250.00	0.13		5.71 E-04	5.00	#####	--	--	--	--	--	--	--	--	--	--	--	--
Total				**51.94**	**455,000.00**	**227.63**		1.04	######	**4.55**	**10.79**	**94,500.00**	**47.25**	**0.22**	**1,890.00**	**0.95**	**5.65**	**49,500.00**	**24.75**	**0.11**	**990.00**	**0.50**

[7]Most baghlter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%.
[8]LG Energy Solution Michigan, Inc.: 1 LG Way, Holland, Allegan County, Michigan. PTI Application for LIB Production Phase II. November 10, 2021

Unlimited PTE

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#1-4)	0.63	0.63	0.63					
Binder Silos (#1-8)	0.63	0.63	0.63					
Binder Mixer (#1-8)	0.63	0.63	0.63	3.40				
Binder Storage Tank (#1-16)				3.37				
Cathode Inlet (#1-14)	56.25	56.25	56.25		24.00	8.25	15.75	
Cathode Silo (#1-14) & Cathode Mixer Hopper (#1-14)	112.50	112.50	112.50		48.00	16.5	31.50	01-PEF-03-05
HD Mixers (#1-14)	57.00	57.00	57.00	1.74E-01				
EMF Buffer Tanks (#1-14)				1.06E-02				
Slurry Storage Tank (#1-28)				1.06E-02				
Coater Buffer Tank (#1-4)				1.06E-02				
NMP Supply Tank (#ST1-ST2)				6.97E-03				
Total	227.63	227.63	227.63	6.98	72.00	24.75	47.25	

Controlled

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#1-4)	0.01	0.01	0.01	-	-			
Binder Silos (#1-8)	0.01	0.01	0.01	-	-			
Binder Mixer (#1-8)	0.01	0.01	0.01	1.02	-			
Binder Storage Tank (#1-16)		-	-	1.01	-			
Cathode Inlet (#1-14)	1.13	1.13	1.13	0.00	0.48	0.17	0.32	
Cathode Silo (#1-14) & Cathode Mixer Hopper (#1-14)	2.25	2.25	2.25	0.00	0.96	0.33	0.63	01-PEF-03-05
HD Mixers (#1-14)	1.14	1.14	1.14	0.05	-	-	-	
-	-	-	-	0.00	-	-	-	
Slurry Storage Tank (#1-28)	-	-	-	0.00	-	-	-	
Coater Buffer Tank (#1-4)	-	-	-	0.00	-	-	-	
NMP Supply Tank (#ST1-ST2)	-	-	-	0.00	-	-	-	
Total (TPY)	4.55	4.55	4.55	2.09	1.44	0.50	0.95	
Total (lbs/hr)	1.04	1.04	1.04		0.33	0.11	0.22	

CE	0.895

limited

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#1-4)	0.07	0.07	0.07	0.00	0.00	0.00	0.00	
Binder Silos (#1-8)	0.07	0.07	0.07	0.00	0.00	0.00	0.00	
Binder Mixer (#1-8)	0.07	0.07	0.07	3.40	0.00	0.00	0.00	
Binder Storage Tank (#1-16)	0.00	0.00	0.00	3.37	0.00	0.00	0.00	
Cathode Inlet (#1-14)	5.91	5.91	5.91	0.00	2.52	0.866	1.654	
Cathode Silo (#1-14) & Cathode Mixer Hopper (#1-14)	11.81	11.81	11.81	0.00	5.04	1.73	3.31	01-PEF-03-05
HD Mixers (#1-14)	5.99	5.99	5.99	0.17	0.00	0.00	0.00	
0	0.00	0.00	0.00	0.01	0.00	0.00	0.00	
Slurry Storage Tank (#1-28)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	
Coater Buffer Tank (#1-4)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	
NMP Supply Tank (#ST1-ST2)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	
Total (TPY)	23.90	23.90	23.90		7.56	2.60	4.96	
Total (lbs/hr)	5.46	5.46	5.46		1.73	0.59	1.13	

ATSD Appendix A: Emission Calculations
ANODEMIX Plant 1

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ANODEMIX
Aline1-4

MATERIALS SPECIFICATION AND THROUGHPUT

Material Name	Physical Characteristics						Process Information		
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Max Volume Used	Annual Usage	Process Temp.
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F
MICELLCMC GB-S01 (CMC-2500)	13.29	240.21	0.00	0.00	0.00%	100.00%	41,369	275	86
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	16.62	12.01	0.00	0.00	0.00%	100.00%	3,656,866	30,386	86
Styrene Butadiene Rubber (SBR) - HCM-815)	8.40	158.24	0.00	0.041	0.49%	48.00%	15,893	67	86

[1]This is the list based on the latest information provided by Samsung SDI on 4/28/2023.

VOC AND HAP EMISSIONS

ANODE MIX TANKS							VOC Emissions[4], Uncontrolled			
Tank Types	Contents	Capacity (gal)	Total Throughput (tpy)[6]	Quantity	Tank Throughput (tons/yr/tank)	EF Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr
PD Mixer (24)	VOC = SBR	608	67	24	3	Mass Balance	27	7.44E-02	652	3.26E-01
Total for all Units		**608**	**67**	**24**	**3**		**27**	**0**	**652**	**3.26E-01**

[2]VOC emissions calculated throughput times emission factor.
[3]Water is assumed to have no VOC emissions
[4]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]
[5]Based on MTI formula estimate that SBR is 2.25% of the total volume of slurry.
VOC content for SBR based on SDS from Euclid chemical dated 05.2021

PARTICULATE EMISSIONS

ANODE MIXING				Particulate Emissions, Uncontrolled			Baghfilter Control Efficiency[7]	Particulate Emissions, Controlled		
Powder Material Used in Anode Mixing	Total Annual Throughput (tons)	Emission Calculation Basis[8]	PM Emission Factor[8]	lb/hr	lb/yr	ton/yr	%	lb/hr	lb/yr	ton/yr
MICELLCMC GB-S01 (CMC-2500)	275	Similar Facility	0.5%	0.31	2,750	1	98.00%	6.28 E-03	55.00	0.0
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	30,386	Similar Facility	0.5%	34.69	303,860	152		0.69	6,077.20	3.0
Total				**35.00**	**306,610**	**153.305**		**0.70**	**6,132.20**	**3.1**

[7]Most baghfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%.
[8]LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021

	Unlimited PTE					Controlled PTE				
Proccess/ Emission Unit	PM	PM10	PM2.5 *	VOC	Stack	PM	PM10	PM2.5 *	VOC	Stack
CMC Booth (#1-4) & Anode Conductive Powder Booth (#1-4)	0.344	0.344	0.344		01-PEF-01-02	0.007	0.007	0.007		01-PEF-01-02
CMC Silo (#1-4) & Anode Conductive Powder Silo (#1-8)	0.344	0.344	0.344			0.007	0.007	0.007		
CMC Mixer (#1-12)	0.344	0.344	0.344			0.007	0.007	0.007		
CMC Storage Tank (#1-24)	0.000	0.000	0.000			0.000				
PD Mixer (#1-24)	38.326	38.326	38.326	0.326		0.767	0.767	0.767	0.326	
Anode Inlet (#1-16)	37.983	37.983	37.983			0.760				
Anode Silo (#1-16) & Anode Mixer Hopper (#1-24)	75.965	75.965	75.965			1.519	1.519	1.519		
Storage Tank (#1-48)										
Coater Buffer Tank (#1-8)										
Total (TPY)	153.31	153.31	153.31	0.33						

CE: 0.75

	Limited PTE				
Proccess/ Emission Unit	PM	PM10	PM2.5 *	VOC	Stack
CMC Booth (#1-4) & Anode Conductive Powder Booth (#1-4)	0.086	0.086	0.086		01-PEF-01-02
CMC Silo (#1-4) & Anode Conductive Powder Silo (#1-8)	0.086	0.086	0.086		
CMC Mixer (#1-12)	0.086	0.086	0.086		
CMC Storage Tank (#1-24)	0.000				
PD Mixer (#1-24)	9.582	9.582	9.582	0.326	
Anode Inlet (#1-16)	9.496	9.496	9.496		
Anode Silo (#1-16) & Anode Mixer Hopper (#1-24)	18.991	18.991	18.991		
Storage Tank (#1-48)	0.000				
Coater Buffer Tank (#1-10)	0.000				

Total (TPY)	38.326	38.326	38.326
Total (lb/hr)	8.750285388	8.750285388	8.750285388

ATSD Appendix A: Emission Calculations

USEDNMP STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

VOC Emissions

Used/Recovered NMP Storage Tank (ST3-ST4)
Criteria Pollutant Emission Rates

Material Name[1]	Process	Physical Characteristics						Process Information			VOC Emissions		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Recovered NMP[4]		Process Temp.	Uncontrolled Emissions	Control Efficiency[2]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year
NMP (N-Methyl-2-Pyrrolidone), Recovered	Used/Recovered NMP Storage	8.62	99.13 g/mol	0.32 hPa (20 °C)	8.62	100%	0%	3,590,451	15,469	95.00	See Tank VOC Emissions in Table Below		
											Total for All Products (lb/year):		
											Total for All Products (lb/hour):		
											Total for All Products (ton/year):		

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).

Used/Recovered NMP Storage Tank							VOC Emissions, Uncontrolled				ACT Control Efficiency[3]	VOC Emissions, Controlled			
Tank Types	Contents	Capacity (gal)	Maximum Annual Throughput[4] (gal)	Quantity	Maximum Throughput per Tank (gal)	Emission Calculation Basis	lb/yr/tank[3]	lb/hr	lb/yr	ton/yr	%	lb/yr/tank[3]	lb/hr	lb/yr	ton/yr
Used/Recovered NMP Storage Tank (ST3	Recovered NMP	7,925	3,590,451	2	1,795,226	TankESP	15.16	3.46 E-03	15.16	7.58 E-03	70%	4.55	1.04 E-03	9.10	4.55 E-03

[2]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).

[3]Tank VOC emissions calculated using BREEZE TanksESP

[4]The maximum annual recovered NMP amount is 99% of the total annual NMP usage for the facility

Appendix A: Emission Calculations
ANODECOAT-DRYING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ANODECOAT/DRYING
Criteria Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]		
		Density	Molecular Weight	VP	VOC As Used / As Applied		Solids	Max Annual Throughput		Process Temp.	Uncontrolled Emissions		Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year		lb/year
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	Anode Coat/Drying	16.62	12.01	0.00	0.00	0.00%	100.00%	0	0.00	86	0.00		0.00
Styrene Butadiene Rubber (SBR) - HCM-815)	Anode Coat/Drying	8.40	158.24	0.00	0.04	0.49%	48.00%	301,964	1,268.25	86	12,380.54		12380.54
Isopropyl Alchohol (Clean)	Anode Coat/Drying	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.63	86	1,250.00		1250.00
CMC2500	Anode Coat/Drying	0.00	0.00	0.00	0.00	--	0.00%	0	0.00	0	0.00		0.00
									Total for All Products (lb/year):		13,630.54		13,630.54
									Total for All Products (lb/hour):		1.56		1.56
									Total for All Products (ton/year):		6.82		6.82

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]Anode Coat Slurry is sprayed on the copper foil substrate and then dried in five (5) furnaces that exhaust directly to the outdoor atmosphere.
[3]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[4]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
CATHODECOAT - CATHODE DRYER - NMP RECOVERY

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID CATHODECOAT-CATHODE DRYER - NMP RECOVERY

Unit ID	Throughput(each)	Inherenent Process Equipment	Stack	Pre-Solvent Recovery emissions (TPY)	Post-Solvent Recovery System Emissions (TPY)
C-Coat1	387,500 square inches per minute of coil	SRT-01	SR-01	5,101.41	10.20
C-Coat2	387,500 square inches per minute of coil	SRT-02	SR-02	5,101.41	10.20
C-Coat3	387,500 square inches per minute of coil	SRT-03	SR-03	5,101.41	10.20
C-Coat4	387,500 square inches per minute of coil	SRT-04	SR-04	5,101.41	10.20

Criteria Pollutant Emission Rates

Unlimited VOC/HAP Emissions

Material Name[1]	Physical Characteristics						Process Information			VOC Emissions[4]			Product Recovery
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Volume Displaced	Annual Usage	Process Temp.	Pre-Solvent Recovery emissions	Solvent recovery System Efficiency [3]	Post-Solvent Recovery System Emissions	Recovered Product
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%		tons/yr
Isopropyl Alchohol (Clean)	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.6	86	1250		2.50	
LCNT - Binder Solution for Cathode Mix (TDS	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450.0	86	9810000		19,620.00	4,895.19
Nickel Cobalt Aluminium Oxide (NCA)	38.66	244.15	0.00	0.00	0.00%	100.00%	0	0.0	86	0		-	
PVDF (Poly Vinylene Fluoride)	14.54	64.03	517.30	0.00	0.00%	100.00%	0	0.0	86	0	99.80%	-	
Oxalic Acid Cathode Additive	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25.0	0	0		-	
NMP (N-Methyl-2-Pyrrolidone)	8.62	99.13	0.00	8.62	100.00%	0.00%	3,597,647	15,500.0	104	31000000		62,000.00	15,469.00
							Total for All Products (lb/year):			**40,811,250.00**		**81,622.50**	
							Total for All Products (lb/hour):			**4,658.82**		**9.32**	
							Total for All Products (ton/year):			**20,405.63**		**40.81**	**20,364.19**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2] Cathode Coat Slurry is sprayed on the aluminum foil substrate.
[3]The integral NMP recovery system expected overall emissions control efficiency is 99.8% based on a design specifications submited on April 11, 2024.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]
[2]VOC emissions are generated from Cathode drying process which consist of five (5) furnaces that exhaust through the Solvent Recovery system to the atmosphere.
[7]Based on the review of AP-42 emission factors for Industrial Surface Coating (AP-42, Chapter 4.2.2.1) and Metal Coil Coating (AP-42, Chapter 4.2.2.10), there are no PM emissions from those processes and therefore, the emission factor for PM is zero.

Limited VOC/HAP Emissions

Material Name[1]	Physical Characteristics						Process Information			VOC Emissions[4]		
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Volume Displaced	Annual Usage	Process Temp.	Pre-Solvent Recovery emissions	Solvent recovery System Efficiency [3]	Post-Solvent Recovery System Emissions
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	
Isopropyl Alchohol (Clean)	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.6	86	1250		5.00
LCNT - Binder Solution for Cathode Mix (TDS	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450.0	86	9810000		39,240.00
Nickel Cobalt Aluminium Oxide (NCA)	38.66	244.15	0.00	0.00	0.00%	100.00%	0	0.0	86	0		-
PVDF (Poly Vinylene Fluoride)	14.54	64.03	517.30	0.00	0.00%	100.00%	0	0.0	86	0	99.60%	-
Oxalic Acid Cathode Additive	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25.0	0	0		-
NMP (N-Methyl-2-Pyrrolidone)	8.62	99.13	0.00	8.62	100.00%	0.00%	3,597,647	15,500.0	104	31000000		124,000.00
							Total for All Products (lb/year):			**40,811,250.00**		**163,245.00**
							Total for All Products (lb/hour):			**4,658.82**		**18.64**
							Total for All Products (ton/year):			**20,405.63**		**81.62**
												20.41

Per line

Appendix A: Emission Calculations
PLANT 2 CATHODECOAT - CATHODE DRYER - NMP RECOVERY

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unlimited VOC/HAP Emissions

Material Name[1]	Physical Characteristics						Process Information			VOC Emissions[4]			Product Recovery
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Volume Displaced	Annual Usage	Process Temp.	Pre-Solvent Recovery emissions	Solvent Recovery System Efficiency[3]	Post-Solvent Recovery System Emissions	Recovered Product
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/yr	tons/yr
Isopropyl Alchohol (Clean)	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.6	86	1,250	99.80%	2.5	
LCNT - Binder Solution for Cathode Mix (TDS-L)	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450.0	86	9,810,000		19,620	4,895.19
Nickel Cobalt Aluminium Oxide (NCA)	38.66	244.15	0.00	0.00	0.00%	100.00%	0	0.0	86	0		0	
PVDF (Poly Vinylene Fluoride)	14.54	64.03	517.30	0.00	0.00%	100.00%	0	0.0	86	0		0	
Oxalic Acid Cathode Additive	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25.0	0	0		0	
NMP (N-Methyl-2-Pyrrolidone)	8.62	99.13	0.00	8.62	100.00%	0.00%	3,597,647	15,500.0	104	31,000,000		62,000	15,469.00
									Total for All Products (lb/year):	**40,811,250.00**		**81,622.50**	
									Total for All Products (lb/hour):	**4,658.82**		**9.32**	
									Total for All Products (ton/year):	**20,405.63**		**40.81**	

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2] Cathode Coat Slurry is sprayed on the aluminum foil substrate.
[3]The integral NMP recovery system expected overall control efficiency is 99.8% based on a design specifications submited on April 11, 2024.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]
[2]VOC emissions are generated from Cathode drying process which consist of five (5) furnaces that exhaust through the Solvent Recovery system to the atmosphere.
[7]Based on the review of AP-42 emission factors for Industrial Surface Coating (AP-42, Chapter 4.2.2.1) and Metal Coil Coating (AP-42, Chapter 4.2.2.10), there are no PM emissions from those processes and therefore, the emission factor for PM is zero.

Limited VOC/HAP Emissions

Material Name[1]	Physical Characteristics						Process Information			VOC Emissions[4]			Product Recovery
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Volume Displaced	Annual Usage	Process Temp.	Pre-Solvent Recovery emissions	Solvent Recovery	Post-Solvent Recovery System	Recovered Product
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	tons/yr
Isopropyl Alchohol (Clean)	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.6	86	1250	99.60%	5.00	
LCNT - Binder Solution for Cathode Mix (TDS-L)	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450	86	9810000		39,240.00	4,885.38
Nickel Cobalt Aluminium Oxide (NCA)	38.66	244.15	0.00	0.00	0.00%	100.00%	0	0	86	0		0.00	
PVDF (Poly Vinylene Fluoride)	14.54	64.03	517.30	0.00	0.00%	100.00%	0	0	86	0		0.00	
Oxalic Acid Cathode Additive	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25	0	0		0.00	
NMP (N-Methyl-2-Pyrrolidone)	8.62	99.13	0.00	8.62	100.00%	0.00%	3,597,647	15,500	104	31000000		124,000.00	15,438.00
									Total for All Products (lb/year):	**40811250.00**		**163,245.00**	
									Total for All Products (lb/hour):	**4658.82**		**18.64**	
									Total for All Products (ton/year):	**20405.63**		**81.62**	

Appendix A: Emission Calculations
SLITTING

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

Process Descriptions

Unit ID	Throughput(each)	Control	Stack
AS1	3,937 in/min	ASBF1- ASBF4	01-DCEF-1
AS2	3,937 in/min	ASBF5- ASBF8	
AS3	3,937 in/min	ASBF9-ASBF12	
AS4	3,937 in/min	ASBF13- ASBF16	
CS1	3,937 in/min	CSBF1- CSBF4	01-DCEF-2
CS2	3,937 in/min	CSBF5- CSBF8	
CS3	3,937 in/min	CSBF9-CSBF12	
CS4	3,937 in/min	CSBF13- CSBF16	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed - Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Anode Slitting	Dry	Brass	**0.000472**	**0.0393**	**15,748**	**bagfilter**	**98**	8.70	0.3143049	5	2.92E-07	944,880	0.28	0.01	1.21	0.02
Cathode Slitting	Dry	Aluminum	**0.000472**	**0.0393**	**15,748**	**bagfilter**	**98**	2.80	0.1011556	5	9.38E-08	944,880	0.09	0.002	0.39	0.01

Sources
AP-42 Chapter 12 Related Emission Factor Documents
https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Copper substrate that is used for the Anode has used brass metal to estimate PM emissions as this is a metal that has similar properties to copper.
3. Metal cutting rate (inches/minute) is assumed to be 100 meters per minute per line (or 3,937 inches per minute per line X 4 production lines) similar to the LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021
4. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

Specific Gravity/Fume Generation Table
Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
TERMINAL WELD

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput	Control ID	Stack ID
LPW1-1 to LPW1-2	897 cells/hr	LPWBF1 to LPWBF2	01-DCEF-7
LPW2-1 to LPW2-2	897 cells/hr	LPWBF3 to LPWBF4	
LPW3-1 to LPW3-2	897 cells/hr	LPWBF5 to LPWBF6	
LPW4-1 to LPW4-2	897 cells/hr	LPWBF7 to LPWBF8	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions						
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)	Limited %CE	Limited (lb/hr)	Limited (ton/yr)
Anode Terminal Weld	Dry	Brass	0.4606299	0.114173	76	bagfilter	98	8.7	0.31	5	8.26E-04	4,560	3.7688	0.0754	16.5073	0.3301	90	0.3769	1.65072663
Cathode Terminal Weld	Dry	Aluminum	0.4606299	0.114173	76	bagfilter	98	2.8	0.10	5	2.66E-04	4,560	1.2129	0.0243	5.3127	0.1063	90	0.1213	0.53126834

Sources

AP-42 Chapter 12 Related Emission Factor Documents
https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing which is the metal type selected for can-cap welding.
3. Metal welding rate (inches/minute) is assumed to be 6.46 cm per cell for both anode and cathode combined and 2,619,240 cells per month
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)

2619240 cells per month
Weld per cell is 6.46 cm in length (for terminal weld - for both anode and cathode combined

Total laser weld speed (inches/minute) = 76 inches/min for all 4 lines

Specific Gravity/Fume Generation Table
Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
ASSEMBLY (General)

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ASSEMBLY
Accounts for any emissions missed from the proccess associated with the other assembly operations

VOC/HAP Emissions																
Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
DEMAK DK 001 (Gap Filler Hardener)	Assembly	10.10	250.00	<0.00001hPa (20 C)	0.10	1.00%	--	2,972	15	86	300.00		90.00	60.00		18.00
DMC (Di Methyl Carbonate)	Assembly, Innovation	8.81	90.08	1.10	0.00	0.00%	0.00%	6,798	30	86	0.00		0.00	0.00		0.00
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2,493.33	70%	748.00	0.00	70%	0.00
P-80 Grip-It	Pack/Assembly	8.30	18.00	0.46	0.01	0.10%	3.00%	120	0.50	86	1.00		0.30	0.00		0.00
SEPUR 114FR THIXO - THIXO/L -FV THIXO (Gap Filler Resin)	Assembly	12.67	362.40	0.00	0.00	0.00%	62.00%	15,783	100	86	0.00		0.00	0.00		0.00
Henkel Technomelt PS 8210 EV (Hotmelt Resin)	Assembly	8.14	--	Negligible	0.00	0.00%	100.00%	59,191	241	86	0.00		0.00	0.00		0.00
										Total for All Products (lb/year):	**2,794.33**		**838.30**	**60.00**		**18.00**
										Total for All Products (lb/hour):	**0.32**		**0.10**	**0.01**		**0.00**
										Total for All Products (ton/year):	**1.40**		**0.42**	**0.03**		**0.01**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2] Assembly includes general battery assembly, notching, terminal welding, can-cap welding, and electrolyte filling.
[3]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

PM emissions						
Material Name	Process	Maximum Annual Throughput	Total PM EF*	PM10 EF*	Total PM	PM10
		Tons/year	lbs/tons	lbs/tons	tons/year	tons/year
Lime	Duct Lime Injection	6	0.0048	0.0028	1.44E-05	#######

* EF is Weigh hopper loading from TABLE 11.12-2 (ENGLISH UNITS) EMISSION FACTORS FOR CONCRETE BATCHING
PM10= PM2.5

Appendix A: Emission Calculations
NOTCHING-STACKING

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

Unit ID	Throughput (total)	Control ID	Stack ID
S1 1 to S1 32	897 cells/hr	S1 BF1 to S1 BF32	01-DCEF-3
S2 1 to S2 32	897 cells/hr	S2 BF1 to S2 BF32	01-DCEF-4
S3 1 to S3 25	897 cells/hr	S3 BF1 to S3 BF25	01-DCEF-5
S4 1 to S4 25	897 cells/hr	S4 BF1 to S4 BF25	01-DCEF-6

1968.5 in/min, total

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed - Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Anode Stacking	Dry	Brass	0.000472	0.0393	15,478	bagfilter	98	8.7	0.3143049	5	2.9E-07	928,685	2.71E-01	5.41E-03	1.19E+00	2.37E-02
Cathode Stacking	Dry	Aluminum	0.000472	0.0393	15,478	bagfilter	98	2.8	0.1011556	5	9.4E-08	928,685	8.71E-02	1.74E-03	3.82E-01	7.63E-03
												Total:	3.58E-01	7.16E-03	1.57E+00	3.13E-02

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Copper substrate that is used for the Anode has used brass metal to estimate PM emissions as this is a metal that has similar properties to copper.
3. There is not a representative emission factor for the notching process (which is cutting of the metal subtrate aluminum and copper using a die (die cutter)). We believe it is conservative to use plasma / laser cutting emission factors to estimate the PM emissions from Notching.

5. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
6. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
7. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%
4. Working parameter :

Cells per month	2619240	
Cut length per cell :	657.43	cm
Total laser cut speed (inches/minute) =	15,478	inches/min

Specific Gravity/Fume Generation Table
Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
CAN-CAP WELD

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	roughput (total per li	Control ID	Stack ID
CanCap1-1 to CANCAP1-2	897 cells/hr	CANCAPBF1 to CANCAPBF2	01-DCEF-8
CanCap2-1 to CANCAP2-2	897 cells/hr	CANCAPBF3 to CANCAPBF4	
CanCap3-1 to CANCAP3-2	897 cells/hr	CANCAPBF5 to CANCAPBF6	
CanCap4-1 to CANCAP4-2	897 cells/hr	CANCAPBF7 to CANCAPBF8	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
CAN-CAP WELD	Dry	Aluminum	0.0354331	0.0393701	152	bagfilter	98	2.8	0.1011556	5	7.05563E-06	9.125	0.0644	0.0013	0.2820	0.0056

Sources
AP-42 Chapter 12 Related Emission Factor Documents
https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.

2. Aluminum alloy is used for the cylindrical can casing which is the metal type selected for can-cap welding.

4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)

5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)

6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

3. Working parameter :

Cells per month	2619240			
Weld length per cell :	6.46		cm	
Total laser weld speed (inches/minute) =		152	inches/min	for all 4 lines

Appendix A: Emission Calculations
ELECTROLYTE FILLING

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

Unit ID	Throughput (total)	Control	Stack
EFM1-EFM8	897 cells per hour	CAT-02a, CAT-02b, CAT-02c, CAT-02d, & CAT-02e Standby	S-2a, S-2b, S-2c, S-2d, and S-2e Standby
EFM9-EFM16	897 cells per hour		
EFM17-EFM24	897 cells per hour		
EFM25-EFM32	897 cells per hour		

VOC Emissions

Calculate VOC Emissions of Electrolyte Solution from filling each battery cell.
Use USEPA Equation for Evaporative Losses from a Spill (see references below)

QR = (0.284 x u^0.78 x MW^2/3 x A x VP / (82.05 x T)

u =	**0.5**	**m/s**
MW =	**0.22**	**lb/mol**
A =	**0.000844962**	**sq ft.**
VP =	**55.364**	**mm Hg at 25 deg C**
T =	**294**	**K**

QR = lb/min per cell (calculation is for 1 cell)
u = assumed to be conservative value of air motion (speed) across electrolyte Ssel pin = 10 feet per min = 0.5 m/s
MW = molecular weight of electrolyte solution = used MW of highest concentration component = DMC (dimethyl carbonate) = 0.22 lb/mol
A = area of electrolyte filling pin hole = assumed (conservative - large) diameter of electrolyte filling hole of cylindrical cell = 1 cm = 0.0328 feet = 0.000845 sq. feet
VP = vapor pressure for the electrolyte is not available so we used DMC's vapor pressure = 55.364 mmHg @ 25 deg C (based on vapor pressure of dimethyl
T = temperature at the surface of the cell electrolyte filling hole is assumed to be room temperature = 70 deg F or 294 deg K.

2.799 Kpa (kilo pascels)

QR = 0.284 x ($0.5^{0.78}$ m/s)*($0.22^{0.6667}$ lb/mol) x 0.000845 sq. ft x 55.364mmHg ÷ (82.05*294K)
QR = 1.17546E-07 lb VOC/min/cell

(Multiply QR by length of time that the filling hole is open which according to Patent No. US6387561B1[1] can be up to 2 hours)

QR =	**1.41055E-05**	**lb VOC/cell**		**No. of Cells / yr**	31430880 **cells produced per year**
QR =	**443.35**	**lb VOC/year**	**Uncontrolled**		**2,619,240**
QR =	**0.22**	**tons VOC/year**	**Uncontrolled**		
QR =	**0.05**	**lb VOC/hr**	**Uncontrolled**		
QR =	**133.00**	**lb VOC/year**	**Controlled**		
QR =	**0.07**	**tons VOC/year**	**Controlled**		
QR =	**0.02**	**lb VOC/hr**	**Controlled**		

31430880 cells per year total
7857720 cells/year/line

897 **cells/hr/line**

[1] *Patent No. US6387561B1Electrolyte-solution filling method and battery structure of lithium secondary battery states:*
*"It is confirmed by FIG. 3 that, according to a conventional electrolyte solution filling method, **approximately two hours** of the electrolyte solution impregnation time period were required by the time when the alternate impedance dropped to a certain constant value, while, according to the present invention, the equivalent impregnation processing could be implemented in about 30 minutes and the cut in time for producing the battery can be attained."*

Appendix A: Emission Calculations
TAPING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47692-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control ID	Stack ID
TM-1	3,588 cells/hr	TMBF1-TMBF4	02-EF-301-302
TM-2		TMBF5-TMBF8	
TM-3		TMBF9-TMBF12	
TM-4		TMBF13-TMBF16	
TM-5		TMBF17-TMBF20	
TM-6		TMBF21-TMBF24	
TM-7		TMBF25-TMBF28	
TM-8		TMBF29-TMBF32	

Particulate Emissions																
INPUT DATA (PUT YOUR INFORMATION BELOW)													PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
TAPING	Dry	Aluminum	0.000472	0.0393	15,478	BagFilter	98	2.8	0.1011556	5	9.38198E-08	928.685	0.087	0.002	0.382	0.008

Sources
AP-42 Chapter 12 Related Emission Factor Documents
https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing "seal" which is the metal type selected for cylindrical cans.
3. Metal cutting rate (inches/minute) is assumed to be 100 meters per minute per line - conservative for seal welding - (or 3,937 inches per minute per line X 4 production lines) similar to the LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%
Metal Cutting Speed -Feed Rate (inches/minute) (Manufacturer's rating or best engineering knowledge if manual feed)

Cells per month 2619240
Cut length per cell : 657.43 cm
Total laser cut speed (inches/minute) = 15,478 inches/min for all 4 lines

Appendix A: Emission Calculations
SEALING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control ID	Stack ID
SPW1-1 to SPW1-2	897 cells/hr	SPWBF1	02-EF-301-30
SPW2-1 to SPW2-2	897 cells/hr	SPWBF2	
SPW3-1 to SPW3-2	897 cells/hr	SPWBF3	
SPW4-1 to SPW4-2	897 cells/hr	SPWBF4	

Particulate Emissions																
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
SEAL	Dry	Aluminum	0.000472	0.00472441	3	BagFilter	98	2.8	0.1011556	5	1.12785E-08	170	1.91E-06	3.82E-08	8.37E-06	1.67E-07

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing "seal" which is the metal type selected for cylindrical cans.
3. Metal cutting rate (inches/minute) is assumed to be 1 cm in diameter for each cell - conservative for seal welding would be seal weld of the perimeter which equals
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

cells per month **2,619,240**
weld length per cell **0.12 cm**
Total laser weld speed (inches/minute) = **3** **inches/min for all 4 lines**

Appendix A: Emission Calculations
FORMATION

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput	Control ID	Stack
HVC1-HVC4	3,588 cells/hr total	CAT-03a, CAT-03b & CAT-03c /Standby	S-3a, S-3b, S-3c, S-3d, and S-3e Standby

The Formation process includes a round of aging in electrolyte solution, charging/discharging, a second round of aging, output testing, insulating, visual inspections, and packaging.

VOC/CO2/H2 Emissions

Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017

Calculate vent-gas released during formation

From research conducted by others, calculate the total gas amount (by weight) emitted per cell

Possible Amount of Gas Emitted during Formation from 1 Cell (used Worst Case Value)

Device (LIB Cells)	Total Gas Emission Amount/mmol/cell[1]
ICR18650-32A (NCA[2])	6.2
INR18650-35E (NCA[2])	3.69
INR18650-MJ1 (NCA[2])	1.64

[1] *1st Venting Condition of a damaged cell conservatively represents LIB Formation initial charging/discharging*
[2] *Table 1 "Holistic methodology for characterisation of thermally induced…….RSC Advances, 2017"*

Formation Pollutants Molecular Weights

Formation Pollutants	Molecular Weight		
	g/mol	g/mmol	lb/mmol
H2	2.016	0.002016	4.44053E-06
CO2	44.01	0.04401	9.69383E-05
CO	28.01	0.02801	6.1696E-05
CH4	16.04	0.01604	3.53304E-05
VOCs	78.95	0.07895	0.000173899

Formation Gas Composition	Percent by Weight[3]	Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate
	(%)	(lb/cell[4])	(lb/hr)	(lb/yr)	(tons/yr)	(lb/hr)	(lb/yr)	(tons/yr)
H2	2.4%	6.69E-07	2.40E-03	21.03	0.01	2.40E-03	21.03	0.01
CO2	82.2%	4.94E-04	1.77E+00	15,526.11	7.76	1.77E+00	15,526.11	7.76
CO	0.0%	0.00E+00	-	-	-	-	-	-
CH4	0.0%	0.00E+00	-	-	-	-	-	-
VOCs	15.4%	1.66E-04	5.95E-01	5,211.96	2.61	1.78E-01	1,563.59	0.78
Total	100.0%							

[3] *Formation Gas Composition emission percent by weight from "Table 1, "Detection of Li-ion battery failure…..etransportion 7 (2021) 100100"*
[4] *Annual # of LIB Cells Produced at Kokomo Indiana = 31,430,880 cells / yr* 31,430,880.00
[5] *Control Efficiency of the CAT Towers= 70%*
[6] Assumed that CAT Towers will not destroy CO2 or H2 - 0% control efficiency (conservative assumption)

Table 1, "Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017"

HVC : Heating Vacuum Charger

HVC performs the following three treatments simultaneously on the cell where the electrolyte injection has been completed.
1. Heating
2. Connect the vacuum tube (hopper) to discharge gas inside the cell
3. Charge

Table 1, "Detection of Li-ion battery failure and venting with Carbon Dioxide Sensors, Ting Cai, Puneet Valecha, Vivian Tran, Brian Engle, Anna Stefanopoulou, Jason Siegel, eTransportation 7 (2021) 100100"

Appendix A: Emission Calculations
MODULE TEST

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (per unit)	Venting
SD1- SD4	897cells/hour	indoors
HBB1- HBB4	897cells/hour	
PSA1-PSA8	897cells/hour	
CUS1-CUS8	897cells/hour	

Process ID MODULE & TEST Criteria and HAP Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
Sonderhoff Fermapor K31-B-4	Module, Pack	9.91	250.25	0.04	0.26	2.61%	0.00%	101	0.50	86	26.10	0%	26.10	6.53	0%	6.53
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electro	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2493.33		2493.33	0.00		0.00
										Total for All Products (lb/year):	2,519.43		2,519.43	6.53		6.53
										Total for All Products (lb/hour):	0.29		0.29	0.0007		7.45E-04
										Total for All Products (ton/year):	1.26		1.26	0.0033		3.26E-03

P = Vapor pressure of product [Pa]
V = Volume displaced [L]
n = moles of gas [mol]
R = Ideal Gas Constant [8,314 L-Pa/mol-K]
T = Temperature [K]

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will form the cells into a module (8-12 cells) and initial testing will be conducted.
[3]VOC Emissions are not controlled in this area.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emissions Calculations
Natural Gas Combustion (≤ 100 MMBtu/hr)

Company Name: rPlus Energy LLC
Source Address: Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Emission Unit	Heat Input Capacity MMBtu/hr	HHV mmBtu/mmscf	Potential Throughput MMCF/yr
BOILER-01	12.50	1020	107.4
BOILER-02	12.5	1020	107.4
HOT WATER	13.5	1020	115.9
SPACE HEATING	13.5	1020	115.9

		Pollutant						
		PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Unit	Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	100	5.5	84
BOILER-01***	Potential Emission in tons/yr	0.10	0.41	0.41	0.03	2.68	0.30	4.51
BOILER-02***	Potential Emission in tons/yr	0.10	0.41	0.41	0.03	2.68	0.30	4.51
HOT WATER	Potential Emission in tons/yr	0.11	0.44	0.44	0.03	5.80	0.32	4.87
SPACE HEATING	Potential Emission in tons/yr	0.11	0.44	0.44	0.03	5.80	0.32	4.87
	Total	**0.42**	**1.70**	**1.70**	**0.13**	**16.96**	**1.23**	**18.76**

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32
*** Boilers 1& 2 are using low Nox Boilers as such Nox Emission factor is 50 for those unit

Methodology
All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu; MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu
Potential Emission (tons/yr) = Potential Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutants (HAPs)

		HAPs - organic					HAPs - Metals						
		Benzene	Dichlorobe	Formaldehyde	Hexane	Toluene	Lead	Cadmium	Chromium	Manganese	Nickel	Total Haps	Highest single hap
Emission Unit	Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03		
BOILER-01	Potential Emission in tons/yr	1.1E-04	6.4E-05	4.0E-03	9.7E-02	1.8E-04	2.7E-05	5.9E-05	7.5E-05	2.0E-05	1.1E-04	1.0E-01	9.7E-02
BOILER-02	Potential Emission in tons/yr	1.1E-04	6.4E-05	4.0E-03	9.7E-02	1.8E-04	2.7E-05	5.9E-05	7.5E-05	2.0E-05	1.1E-04	1.0E-01	9.7E-02
HOT WATER	Potential Emission in tons/yr	1.2E-04	7.0E-05	4.3E-03	1.0E-01	2.0E-04	2.9E-05	6.4E-05	8.1E-05	2.2E-05	1.2E-04	1.1E-01	1.0E-01
SPACE HEATING	Potential Emission in tons/yr	1.2E-04	7.0E-05	4.3E-03	1.0E-01	2.0E-04	2.9E-05	6.4E-05	8.1E-05	2.2E-05	1.2E-04	1.1E-01	1.0E-01
	Total	4.7E-04	2.7E-04	1.7E-02	4.0E-01	7.6E-04	1.1E-04	2.5E-04	3.1E-04	8.5E-05	4.7E-04		

Potential Emission of Combined HAPs (tons/yr)	**4.2E-01**	
Potential Emission of Highest Single HAP (tons/yr)	**4.0E-01**	**Hexane**

Methodology
Methodology is the same as above.
The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emissions Calculations
PLANT 2 Natural Gas Combustion (≤ 100 MMBtu/hr)

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Emission Unit	Heat Input Capacity MMBtu/hr	HHV mmBtu mmscf	Potential Throughput MMCF/yr
BOILER-03	12.50	1020	107.4
BOILER-04	12.5	1020	107.4
HOT WATER	13.5	1020	115.9
SPACE	13.5	1020	115.9

		Pollutant						
		PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Unit	Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	100	5.5	84
BOILER-03***	Potential Emission in tons/yr	0.10	0.41	0.41	0.03	2.68	0.30	4.51
BOILER-04***	Potential Emission in tons/yr	0.10	0.41	0.41	0.03	2.68	0.30	4.51
HOT WATER	Potential Emission in tons/yr	0.11	0.44	0.44	0.03	5.80	0.32	4.87
SPACE	Potential Emission in tons/yr	0.11	0.44	0.44	0.03	5.80	0.32	4.87
Total		**0.42**	**1.70**	**1.70**	**0.13**	**16.96**	**1.23**	**18.76**

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32
*** Boilers 3& 4 are using low Nox Boilers as such Nox Emission factor is 50 for those unit

Methodology
All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu; MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu
Potential Emission (tons/yr) = Potential Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutants (HAPs)

		HAPs - organic					HAPs - Metals						
		Benzene	Dichlorobe	Formaldehyde	Hexane	Toluene	Lead	Cadmium	Chromium	Manganese	Nickel	Total Haps	Highest single hap
Emission Unit	Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03		
BOILER-01	Potential Emission in tons/yr	1.1E-04	6.4E-05	4.0E-03	9.7E-02	1.8E-04	2.7E-05	5.9E-05	7.5E-05	2.0E-05	1.1E-04	1.0E-01	9.7E-02
BOILER-02	Potential Emission in tons/yr	1.1E-04	6.4E-05	4.0E-03	9.7E-02	1.8E-04	2.7E-05	5.9E-05	7.5E-05	2.0E-05	1.1E-04	1.0E-01	9.7E-02
HOT WATER	Potential Emission in tons/yr	1.2E-04	7.0E-05	4.3E-03	1.0E-01	2.0E-04	2.9E-05	6.4E-05	8.1E-05	2.2E-05	1.2E-04	1.1E-01	1.0E-01
SPACE	Potential Emission in tons/yr	1.2E-04	7.0E-05	4.3E-03	1.0E-01	2.0E-04	2.9E-05	6.4E-05	8.1E-05	2.2E-05	1.2E-04	1.1E-01	1.0E-01
	Total	4.7E-04	2.7E-04	1.7E-02	4.0E-01	7.6E-04	1.1E-04	2.5E-04	3.1E-04	8.5E-05	4.7E-04		

Potential Emission of Combined HAPs (tons/yr)	**4.2E-01**	
Potential Emission of Highest Single HAP (tons/yr)	**4.0E-01**	**Hexane**

Methodology
Methodology is the same as above.
The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emission Calculations
FRAME SIDE / BUSBAR WELDING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control Device ID	Stack ID
FSW1	897cells/hour	MBF1	
BW1	897cells/hour	MBF2	
FSW2	897cells/hour	MBF3	
BW2	897cells/hour	MBF4	
FSW3	897cells/hour	MBF5	
BW3	897cells/hour	MBF6	02-EF-301-302
FSW4	897cells/hour	MBF7	
BW4	897cells/hour	MBF8	
FEW1	897cells/hour	MBF9	
FEW2	897cells/hour	MBF10	
FEW3	897cells/hour	MBF11	
FEW4	897cells/hour	MBF12	

Particulate Emissions																
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Frame Side Weld	Dry	Aluminum	3.43E-02	2.48E-02	152	bagfilter	98	2.8	0.10	5	4.30E-06	9,120	0.0392	0.0008	0.1716	0.0034
Busbar Weld	Dry	Aluminum	6.22E-02	2.95E-02	152	bagfilter	98	2.8	0.10	5	9.28991E-06	9,120	0.0847	0.0017	0.3711	0.0074
Frame End Weld	Dry	Aluminum	4.53E-02	2.91E-02	152	bagfilter	98	2.8	0.10	5	6.67149E-06	9,120	0.0608	0.0012	0.2665	0.0053
													0.1848	0.0037	0.8092	0.0162

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
3. Metal welding rate (inches/minute) is assumed to be 25 cm per cell and 675,000 cells per month - conservative for can-cap welding - (or 152 inches per minute for all 4 production lines)
4. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

Cells per month	2,619,240
Weld length per cell	6.46
Total laser weld speed=	152 :hes/min for all 4 lines

Appendix A: Emission Calculations
Reciprocating Internal Combustion Engines - Natural Gas
4-Stroke Rich-Burn (4SRB) Engines

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

EMGEN01-EMGEN 10

Maximum Output Horsepower Rating (hp)	700
Brake Specific Fuel Consumption (BSFC) (Btu/hp-hr)	7600
Maximum Hours Operated per Year (hr/yr)	500
Potential Fuel Usage (MMBtu/yr)	2660
High Heat Value (MMBtu/MMscf)	1020
Potential Fuel Usage (MMcf/yr)	2.61

		Potential Emissions (tons/yr)										
Criteria Pollutants	Emission Factor (lb/MMBtu)	EMGEN-01	EMGEN-02	EMGEN-03	EMGEN-04	EMGEN-05	EMGEN-06	EMGEN-07	EMGEN-08	EMGEN-09	EMGEN-10	**Total (ton/year)**
PM*	9.50E-03	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	**0.1264**
PM10*	1.94E-02	0.03	0.03	0.05	0.06	0.08	0.11	0.14	0.19	0.25	0.34	**1.2766**
PM2.5*	1.94E-02	0.03	0.03	0.05	0.06	0.08	0.11	0.14	0.19	0.25	0.34	**1.2766**
SO2	5.88E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	**0.0078**
NOx	2.21E+00	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	**29.3930**
VOC	2.96E-02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	**0.3937**
CO	3.72E+00	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	**49.4760**

*PM emission factor is for filterable PM-10. PM10 emission factor is filterable PM10 + condensable PM.
PM2.5 emission factor is filterable PM2.5 + condensable PM.

Hazardous Air Pollutants (HAPs)

		Potential Emissions (tons/yr)										
Pollutant	Emission Factor (lb/MMBtu)	EMGEN-01	EMGEN-02	EMGEN-03	EMGEN-04	EMGEN-05	EMGEN-06	EMGEN-07	EMGEN-08	EMGEN-09	EMGEN-10	**Total (ton/year)**
Acetaldehyde	2.79E-03	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.037
Acrolein	2.63E-03	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.035
Benzene	1.58E-03	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.021
1,3-Butadiene	6.63E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.009
Formaldehyde	2.05E-02	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.273
Methanol	3.06E-03	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.041
Total PAH**	1.41E-04	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
Toluene	5.58E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.007
Xylene	1.95E-04	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
	Total	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	

HAP pollutants consist of the nine highest HAPs included in AP-42 Table 3.2-3.
**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

total HAPS 0.427
Highest single HAP 0.273 Formaldehyde

Methodology
Emission Factors are from AP-42 (Supplement F, July 2000), Table 3.2-3
Potential Fuel Usage (MMBtu/yr) = [Maximum Output Horsepower Rating (hp)] * [Brake Specific Fuel Consumption (Btu/hp-hr)] * [Maximum Hours Operated per Year (hr/yr)] / [1000000 Btu/MMBtu]
Potential Emissions (tons/yr) = [Potential Fuel Usage (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2000 lb/ton]

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide

Appendix A: Emission Calculations
FIREPUMP

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity (MMBtu/hr)	8.7
Maximum Hours Operated per Year	500
Potential Throughput (MMBtu/yr)	4,330
Sulfur Content (S) of Fuel (% by weight)	0.500

1237 BHP
8659000 btu/hr
8.659 mmbtu/hr

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.10	0.0573	0.0556	0.505 *(1.01S)*	3.2 **see below	0.09	0.85
Potential Emission in tons/yr	0.22	0.12	0.12	1.09	6.93	0.19	1.84
Potential Emission in lb/hr	0.87	0.50	0.48	4.37	27.71	0.78	7.36

*PM emission factor is from AP-42 Table 3.4-1. The PM10 and PM2.5 emission factors for are from AP-42 Table 3.4-2. The PM10 emission factor is the sum of filterable PM10 and condensable particulate. The PM2.5 emission factor is the sum of filterable particulate less than 3 um and condensable particulate.
**NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBtu

Hazardous Air Pollutants (HAP	Pollutant						Total PAH
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	HAPs***
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04	7.89E-05	2.52E-05	7.88E-06	2.12E-04
Potential Emission in tons/yr	1.68E-03	6.08E-04	4.18E-04	1.71E-04	5.46E-05	1.71E-05	4.59E-04
Potential Emission in lb/hr	3.84E-04	1.39E-04	9.54E-05	3.90E-05	1.25E-05	3.89E-06	1.05E-04

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Potential Emission of Total HAPs (tons/yr)	**3.41E-03**

Methodology
Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4.
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

Appendix A: Emission Calculations

COOLINGTOWERS

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

CWT01-CWT26

	40000	
Cooling Amount	1,538	tons
	3	gpm/ton

Circulating water flow rate (W_c) per tower	4,615	gal/min
Drift loss	0.020%	
Blowdown/drift TDS	350	mg/l
PM10 Mass Fraction	55.840%	
PM2.5 Mass Fraction	0.21%	

	Total Liquid Drift ($lb/10^3$ gal)	PM		PM10		PM2.5	
		(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Cooling Tower 1	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 2	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 3	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 4	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 5	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 6	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 7	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 8	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 9	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 10	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 11	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 12	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 13	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 14	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 15	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 16	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 17	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 18	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 19	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 20	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 21	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 22	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 23	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 24	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 25	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 26	1.67	0.16	0.71	0.09	0.40	0.00	0.00
	Total	**4.20**	**18.41**	**2.35**	**10.28**	**0.01**	**0.04**

Methodology

Methodology ref: par. 2, page 13.4-3, AP-42 (1/95)

Total Liquid Drift ($lb/10^3$ gal) = Drift loss (%) / 100 x 8.34 (lb/gal) x 1,000 ($gal/10^3$ gal)

Emissions (lb/hr) = Total Liquid Drift ($lb/10^3$ gal) x Circulating water flow rate (gal/min) / 1,000 (gal/ gal 10^3) x 60 (min/hr) x Blowdown/drift TDS (mg/l) / 1,000,000 (mg/l / weight fraction)

Emissions (tons/yr) = Emissions (lb/hr) x 8,760 (hr/yr) / 2,000 (lb/ton)

PM10 and PM2.5 mass fractions were estimated using, "Calculating Realistic PM10 Emissions from Cooling Towers," by Reisman, J. and Frisbie, G.

Appendix A: Emission Calculations
MAINT - Paint Booth

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

TOUCH UP PAINT EMISSIONS SUMMARY

Pollutant	HAP?	Cans per Week	oz/week	Gal/week	Gal/yr	lb Pollutant / gal	PM CE	Uncontrolled (lb/hr)	Uncontrolled (lb/yr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (lb/yr)	Controlled (tons/yr)
VOC Emissions	Not Applicable	5	60	0.47	24.4	3.45		0.010	84.1	4.20E-02	0.010	84.1	4.20E-02
PM Emissions	Not Applicable	5	60	0.47	24.4	3.00	99%	0.008	73.1	3.66E-02	0.0001	0.0005	2.38E-07
Isobutyl Acetate	No	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03
Methyl Acetate	No	5	60	0.47	24.4	3.23		0.009	78.6	3.93E-02	0.009	78.6	3.93E-02
Talc	No	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03
Toluene	Yes	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03

From the Krylon Touch up paint SDS [1]Control Efficiency obtained from the manufacturer's specification below.

Key Assumptions

12	oz per aerosol can
128	oz/gal
99%	paint booth filter control efficiency for PM emissions
100%	transfer efficiency (conservative assumption)
5	cans used per week every week of the year (conservative assumption)
100%	All the contents of the can are used for each part or tool painted (conservative assumption)

Appendix A: Emission Calculations
MAINT - WELDING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID MAINTENANCE
Criteria Pollutant Emission Rates

Welding Emissions: Emission factors vary by process used and electrode type.

Emission Factor: Table 12.19-1, AP-42
Maximum amount of electrode used (conservative assumption for typical maint dept): 5,000 *pounds carbon steel electrode*
Gas Metal Arc Welding (GMAW) used - E70S-#.

PM10 Emission Factor:	5.2	lb PM10/1000 lb electrode			
PM10 = (5.2 lb PM10 / 1000 lb electrode) * 33 lb electrode /yr					
Manganese = HAP Content % * PM10 lb/yr					
Typical Manganese HAP Content (%) =	5%				
Total PM10 Emission Rate (lb/yr) =	26.0	lb PM10/yr	divided by	8760	hours/yr
Manganese Emission Rate (lb/yr) =	1.30	pounds Manganese/yr		8760	hours/yr
Total PM10 Emission Rate (lb/hr) =	**2.97E-03**	lb PM10/hr			
Manganese Emission Rate (lb/hr) =	**1.48E-04**	lb Manganese/hr			
Total PM10 Emission Rate (tons/yr) =	**1.30E-02**	tons PM10/yr			
Manganese Emission Rate (tons/yr) =	**6.50E-04**	tons Manganese/yr			

Appendix A: Emission Calculations
Fugitive Dust Emissions - Paved Roads

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Paved Roads at Industrial Site
The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (1/2011).

Vehicle Informtation (provided by source)

Type	Maximum number of vehicles per day	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight of Loaded Vehicle (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
2-Axle 10' Straight Truck	20.0	2.0	40.0	4.5	180.0	10000	1.894	75.8	27651.5
Tanker Truck (6000 gal)	10.0	2.0	20.0	4.2	84.0	10000	1.894	37.9	13825.8
Semi-Trailer (Freight Truck (6 axles))	45.0	2.0	90.0	5.5	495.0	10000	1.894	170.5	62215.9
		Totals	**150.0**		**759.0**			**284.1**	**103693.2**

Average Vehicle Weight Per Trip = 5.1 tons/trip
Average Miles Per Trip = 1.89 miles/trip

Unmitigated Emission Factor, Ef = [k * (sL)^0.91 * (W)^1.02] (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/VMT = particle size multiplier (AP-42 Table 13.2.1-1)
W =	5.1	5.1	5.1	tons = average vehicle weight
sL =	9.7	9.7	9.7	g/m^2 = silt loading value for paved roads at iron and steel production facilities - Table 13.2.1-3)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [1 - (p/4N)] (Equation 2 from AP-42 13.2.1)
Mitigated Emission Factor, Eext = Ef * [1 - (p/4N)]
where p = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N = 365 days per year

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	0.455	0.091	0.0223	lb/mile
Mitigated Emission Factor, Eext =	0.416	0.083	0.0204	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Mitigated PTE of PM (Before Control) (tons/yr)	Mitigated PTE of PM10 (Before Control) (tons/yr)	Mitigated PTE of PM2.5 (Before Control) (tons/yr)	Mitigated PTE of PM (After Control) (tons/yr)	Mitigated PTE of PM10 (After Control) (tons/yr)	Mitigated PTE of PM2.5 (After Control) (tons/yr)
2-Axle 10' Straight Truck	5.75	1.15	0.28	2.87	0.57	0.14
Tanker Truck (6000 gal)	2.87	0.57	0.14	1.44	0.29	0.07
Semi-Trailer (Freight Truck (6 axles))	12.93	2.59	0.63	6.46	1.29	0.32
Totals	**21.55**	**4.31**	**1.06**	**10.77**	**2.15**	**0.53**
Total lb/hr	**4.92**	**0.98**	**0.24**	**2.46**	**0.49**	**0.12**

Methodology

Total Weight driven per day (ton/day)	= [Maximum Weight of Loaded Vehicle (tons/trip)] * [Maximum trips per day (trip/day)]
Maximum one-way distance (mi/trip)	= [Maximum one-way distance (feet/trip) / [5280 ft/mile]
Maximum one-way miles (miles/day)	= [Maximum trips per year (trip/day)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip)	= SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]
Average Miles Per Trip (miles/trip)	= SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]
Unmitigated PTE (tons/yr)	= [Maximum one-way miles (miles/yr)] * [Unmitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (Before Control) (tons/yr)	= [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (After Control) (tons/yr)	= [Mitigated PTE (Before Control) (tons/yr)] * [1 - Dust Control Efficiency]

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particle Matter (<2.5 um)
PTE = Potential to Emit

Appendix A: Emission Calculations
ELECTROLYTE STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ELECTROLYTE STORAGE EST-1

The Electrolyte is stored in a bulk storage tank and is sent via pipe using nitrogen gas. There are tank breathing and working emissions and fugitive emissions from coupler and safety valves.

VOC Emissions

Material Name[1]	Process Information						Connectors			Valves			VOC Emissions[4]		
	Density	Vapor Press.	VOC As Used / As Applied		Maximum Annual Throughput		Count	Emission Factor[4]	VOC Emissions	Count	Emission Factor[4]	VOC Emissions	Uncontrolled Emissions	Control Efficiency[2]	Controlled Emissions
	lbs/gal	psia	lbs/gal	%	Gal/year	Tons/year		lb/hr/ea	lb/hr		lb/hr/ea	lb/hr	lb/year	%	lb/year
SoulBrain Electrolyte	10.20	Not Avail	8.16	80.00%	3,237,312	16,510	15	0.0005	0.0075	15	0.0035	0.0525	525.60	70%	157.68
												Total for All Products (lb/year):	**525.60**		**157.68**
												Total for All Products (lb/hour):	**0.06**		**0.02**
												Total for All Products (ton/year):	**0.26**		**0.08**

[1] *This is the list of utilized materials is based on comparable facilities (Samsung-SDI Korea Plant).*

Electrolyte Storage Tank							VOC Emissions[3], Uncontrolled				Control Efficiency[2]	VOC Emissions[3], Controlled			
Tank Types	Contents	Capacity (gal)	Total Throughput (gal)	Quantity	Throughput per Tank (gal)	Emission Calculation Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr	%	lb/yr/tank	lb/hr	lb/yr	ton/yr
Electrolyte Storage Tank	Virgin Electrolyte	528	3,237,312	1	3,237,312	TankESP	0.29	3.33 E-05	0.29	1.46 E-04	70%	0.20	2.33 E-05	0.20	1.02 E-04
Total for all Units								**3.33 E-05**	**0.29**	**1.46 E-04**			**2.33 E-05**	**0.20**	**1.02 E-04**

Control Device	Process	Quantity (Sets)	Capture Efficiency	Control Efficiency[2]	Total Control	Internal Diameter	Height	Temperature	Operational Flow Rate per Unit	
			%	%	%	ft	ft	F	ACFM	SCFM
CAT-06	Electrolyte Storage	1	100%	70%	70%	3.25	27.48	86	24,720	22,945
Total for all Units									**24,720**	**22,945**

[2] *Electrolyte storage will be in a building with CAT Tower Controls (APC ID: CAT-06), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).*

[3] *Tank VOC emissions calculated using BREEZE TanksESP*

[4] *Fugitive VOC emissions will occur from valves and connectors inside the storage room (but will be controlled by the CAT Tower) which have been estimated as follows:*
Emission factors are based on TCEQ Fugitive Guidance document APDG 6422, dated June 2018, Table 1 (https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/fugitive-guidance.pdf)

Emission factors for Light Liquid are used because of the vapor pressure of the electrolyte.
Emission factors for SOCMI Without Ethylene are used due to product components listed on SDS.
Emissions [lb/hr] = Fugitive Emission Factor [lb/hr/component] x Count of Components [#]

Appendix A: Emission Calculations
INNOVATION

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

VOC Emissions

Process ID INNOVATION
Criteria Pollutant Emission Rates

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year
DMC (Di Methyl Carbonate)	Assembly, Innovation	8.81	90.08	1.10	0.00	0.00%	0.00%	14	0.06	86	0.00	0%	0.00
										Total for All Products (lb/year):	**0.00**		**0.00**
										Total for All Products (lb/hour):	**0.00**		**0.00**
										Total for All Products (lb/day):	**0.00**		**0.00**
										Total for All Products (ton/year):	**0.00**		**0.00**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will be R&D for LIB production
[3]VOC Emissions are not controlled.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
PACKING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID PACKING
Criteria Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
Acetone (Clean)	Pack	0.00	0.00	0.00	0.00	0.00%	0.00%	0	0.00	0	0.00	0%	0.00	0.00	0%	0.00
Sonderhoff Fermapor K31-B-4	Module, Pack	9.91	250.25	0.04	0.26	2.61%	0.00%	101	0.50	86	26.10		26.10	6.53		6.53
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2,493.33		2,493.33	0.00		0.00
P-80 Grip-It	Pack/Assembly	8.30	18.00	0.46	0.01	0.10%	3.00%	120	0.50	86	1.00		1.00	0.00		0.00
Dr Schultz PU- Hot Cleaner	HVS pack	9.17	0.00	0.00	0.00	0.00%	0.00%	47,527	218.01	86	0.00		0.00	0.00		0.00
Kluber Syntheso Glep 1	HVS Pack	8.06	--	0.00	0.00	0.00%	100.00%	248	1.00	86	0.00		0.00	0.00		0.00
								Total for All Products (lb/year):			**2,520.43**		**2,520.43**	**6.53**		**6.53**
								Total for All Products (lb/hour):			**0.29**		**0.29**	**0.0007**		**0.00074**
								Total for All Products (ton/year):			**1.26**		**1.26**	**0.0033**		**0.00326**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will form the cells into a module (8-12 cells) and initial testing will be conducted.
[3]VOC Emissions are not controlled.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
USEDNMP STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID USEDBATT STORE
Unit ID: USB1

VOC/CO2/H2 Emissions

The Used Battery Storage will have similar emissions to the Formation process. Used Batteries will be sent to the storage room for discharging which will create the gas emissions similar to the discharging during Formation.

Calculate vent-gas released during formation

From research conducted by others, calculate the total gas amount (by weight) emitted per cell
Possible Amount of Gas Emitted during Formation from 1 Cell (used Worst Case Value)

Device (LIB Cells)	Total Gas Emission Amount/mmol/cell[1]
ICR18650-32A (NCA[2])	6.2
INR18650-35E (NCA[2])	3.69
INR18650-MJ1 (NCA[2])	1.64

[1] *1st Venting Condition of a damaged cell conservatively represents LIB Formation initial charging/discharging*
[2] *Table 1 "Holistic methodology for characterisation of thermally induced…….RSC Advances, 2017"*

Formation Pollutants Molecular Weights

Formation Pollutants	Molecular Weight		
	g/mol	g/mmol	lb/mmol
H2	2.016	0.002016	4.44053E-06
CO2	44.01	0.04401	9.69383E-05
CO	28.01	0.02801	6.1696E-05
CH4	16.04	0.01604	3.53304E-05
VOCs	78.95	0.07895	0.000173899

Formation Gas Composition	Percent by Weight[3]	Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate
	(%)	(lb/cell[4])	(lb/hr)	(lb/yr)	(tons/yr)	(lb/hr)	(lb/yr)	(tons/yr)
H2	2.4%	6.69E-07	2.79E-06	0.02	0.00	2.79E-06	0.02	0.00001
CO2	82.2%	4.94E-04	2.06E-03	18.03	0.01	2.06E-03	18.03	0.00902
CO	0.0%	0.00E+00	-	-	-	-	-	-
CH4	0.0%	0.00E+00	-	-	-	-	-	-
VOCs	15.4%	1.66E-04	6.91E-04	6.05	0.00303	2.07E-04	1.82	0.00091
Total	100.0%							

[3]Formation Gas Composition emission percent by weight from "Table 1, "Detection of Li-ion battery failure…..etransportion 7 (2021) 100100"
[4]Annual # of LIB Cells Sent to Used Battery Storage at Kokomo Indian: *36,500 cells / yr* 4.17
[5]Control Efficiency of the CAT Towers= *70%*
[6]Assumed that CAT Towers will not destroy CO2 or H2 - 0% control efficiency (conservative assumption)

Table 1, "Detection of Li-ion battery failure and venting with Carbon Dioxide Sensors, Ting Cai, Puneet Valecha, Vivian Tran, Brian Engle, Anna Stefanopoulou, Jason Siegel, eTransportation 7 (2021) 100100"
Table 1, "Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017"
"Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017"

Appendix A: Emission Calculations
PLANT 2 CATHODEMIX

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E. Kokomo. Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID CATHODEMIX
Criteria Pollutant Emission Rates

MATERIALS SPECIFICATION AND THROUGHPUT

Material Name[1]	Process	Physical Characteristics						Process Information		
		Density	Molecular Weight	VP	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	0	0	86
Nickel Cobalt Aluminium Oxide (NCA)	Cathode Mixing, Cathode coating	38.66	244.15	0.00	0.00	0.00%	100.00%	2,327,797	45,000	86
PVDF (Poly Vinylene Fluoride)	Cathode Mixing, Cathode coating	14.54	64.03	517.30	0.00	0.00%	100.00%	68,770	500	86
LCNT - Binder Solution for Cathode Mix (TDS-L)	Binder Solution (Cathode)	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450	86
Oxalic Acid Cathode Additive	HD mixer (Additive)	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25	0
NMP (N-Methyl-2-Pyrrolidone)	Cathode mixing & coating	8.62	99.13	0.00	8.62	100.00%	0.00%	0	0	104

VOC AND HAP EMISSIONS

CATHODE MIX TANKS							VOC Emissions[2], Uncontrolled				ACT Control Efficiency[3]	VOC Emissions[2], Controlled			
Tank Types	Contents	Capacity (gal)	Combined Throughput (gal)[4]	Quantity	Tank Throughput (gal)	EF Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr	%	tank lb/yr	lb/hr	lb/yr	ton/yr
Binder Mixer Tanks	NMP & PVDF	528	15,009,515	8	1,876,189	TankESP	849.17	0.78	6,793.36	3.40	70%	254.75	0.23	2,038.01	1.02
Binder Storage Tanks	NMP & PVDF	528	15,009,515	16	938.095	TankESP	421.77	0.77	6,748.27	3.37		126.53	0.23	2,024.48	1.01
Coater Buffer Tanks	Cathode Slurry	528	22,014,621	4	5,503,655	TankESP	5.32	2.43 E-03	21.27	0.01		1.60	7.28 E-04	6.38	3.19 E-03
Diesel Tanks	Diesel	500	372,000	1	372,000	TankESP	4.74	5.41 E-04	4.74	2.37 E-03		1.42	1.62 E-04	1.42	7.11 E-04
EMF Buffer Tanks	Cathode Slurry	528	22,014,621	14	1,572,473	TankESP	1.52	2.43 E-03	21.24	0.01		0.46	7.28 E-04	6.37	3.19 E-03
HD Mixer Tanks	NMP, PVDF, Oxalic Acid, Binder Soln, NCA (Cathode Slurry)	634	22,014,621	14	1,572,473	TankESP	24.79	0.04	347.09	0.17		7.44	0.01	104.13	0.05
Used NMP Tanks	Used NMP	7,925	14,361,805	2	7,180,903	TankESP	7.58	1.73 E-03	15.16	7.58 E-03		2.27	5.19 E-04	4.55	2.27 E-03
NMP Storage Tanks	Raw NMP	5,283	14,361,805	2	7,180,903	TankESP	6.97	1.59 E-03	13.95	6.97 E-03		2.09	4.78 E-04	4.18	2.09 E-03
Slurry Storage Tank	Cathode Slurry	528	22,014,621	28	786,236	TankESP	0.76	2.43 E-03	21.24	0.01		0.23	7.28 E-04	6.37	3.19 E-03
Total for all Units							**1,322.62**	**1.60**	**13,986.33**	**6.99317**		**396.78**	**0.48**	**4,195.90**	**2.10**

[2]Tank VOC emissions calculated using Breeze TankESP software.
[3]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).

[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

TankESP Throughput Data Source:

PARTICULATE EMISSIONS

CATHODE MIXING				Particulate Emissions, Uncontrolled			Baghfilter Control Efficiency	Particulate Emissions, Controlled			Nickel Emissions, Uncontrolled			Nickel Emissions, Controlled			Cobalt Emissions, Uncontrolled			Cobalt Emissions, Controlled		
Powder Material Used in Cathode Mixing	Total Annual Throughput (tons)	EF Basis	PM Emission Factor	lb/hr	lb/yr	ton/yr	%	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr
Nickel Cobalt Aluminium Oxide (NCA)	45,000	Similar Facility	##########	51.37	450,000.00	225.00	98%	1.03	9,000.00	4.50	10.79	94,500.00	47.25	0.22	1,890.00	0.95	5.65	#######	24.75	0.11	990.00	0.50
PVDF (Poly Vinylene Fluoride)	500	Similar Facility	##########	0.57	5,000.00	2.50		0.01	100.00	0.05	--	--	--	--	--	--	--	--	--	--	--	--
Oxalic Acid Cathode Additive	25		##########	0.03	250.00	0.13		5.71 E-04	5.00	2.50 E-03												
Total				**51.97**	**455,250.00**	**227.63**		**1.04**	**9,105.00**	**4.55**	**10.79**	**94,500.00**	**47.25**	**0.22**	**1,890.00**	**0.95**	**5.65**	**#######**	**24.75**	**0.11**	**990.00**	**0.50**

[7]Most baghfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%.
[8]LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021

Unlimited PTE

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#5-8)	0.63	0.63	0.63	-	-	-	-	02-PEF-03-05
Binder Silos (#9-16)	0.63	0.63	0.63	-	-		-	
Binder Mixer (#9-16)	0.63	0.63	0.63	3.40			-	
Binder Storage Tank (#17-32)	-	-	-	3.37			-	
Cathode Inlet (#15-28)	56.25	56.25	56.25	-	24.00	8.25	15.75	
Cathode Silo (#15-28) & Cathode Mixer Hopper (#15-28)	112.50	112.50	112.50	-	48.00	16.5	31.50	
HD Mixers (#15-28)	57.00	57.00	57.00	0.17	-		-	
EMR Buffer Tanks (#15-28)	-	-	-	0.01	-		-	
Slurry Storage Tank (#29-56)	-	-	-	0.01	-		-	
Coater Buffer Tank (#6-10)	-	-	-	0.01	-		-	
NMP Supply Tank (#5-8)	-	-	-		-		-	
Total	227.63	227.63	227.63	6.98	72.00	24.75	47.25	

Controlled

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#5-8)	0.01	0.01	0.01	-	-	-	-	02-PEF-03-05
Binder Silos (#9-16)	0.01	0.01	0.01	-	-		-	
Binder Mixer (#9-16)	0.01	0.01	0.01	3.40			-	
Binder Storage Tank (#17-32)	-	-	-	3.37			-	
Cathode Inlet (#15-28)	1.13	1.13	1.13	-	0.48	0.17	0.32	
Cathode Silo (#15-28) & Cathode Mixer Hopper (#15-28)	2.25	2.25	2.25	-	0.96	0.33	0.63	
HD Mixers (#15-28)	1.14	1.14	1.14	0.17	-		-	
EMR Buffer Tanks (#15-28)	-	-	-	0.01	-		-	
Slurry Storage Tank (#29-56)	-	-	-	0.01	-		-	
Coater Buffer Tank (#6-10)	-	-	-	0.01	-		-	
NMP Supply Tank (#5-8)	-	-	-		-		-	
Total	4.55	4.55	4.55	6.98	1.44	0.50	0.95	

CE: 0.895
0.105

limited

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#5-8)	0.07	0.07	0.07	-	-	-	-	02-PEF-03-05
Binder Silos (#9-16)	0.07	0.07	0.07	-	-		-	
Binder Mixer (#9-16)	0.07	0.07	0.07	3.40			-	
Binder Storage Tank (#17-32)	-	-	-	3.37			-	
Cathode Inlet (#15-28)	5.91	5.91	5.91	-	2.52	0.87	1.65	
Cathode Silo (#15-28) & Cathode Mixer Hopper (#15-28)	11.81	11.81	11.81	-	5.04	1.73	3.31	
HD Mixers (#15-28)	5.99	5.99	5.99	0.17	-		-	
EMR Buffer Tanks (#15-28)				0.01	-		-	
Slurry Storage Tank (#29-56)				0.01	-		-	
Coater Buffer Tank (#6-10)				0.01	-		-	
NMP Supply Tank (#5-8)				0.00	-		-	
Total (TPY)	23.90	23.90	23.90	6.98	7.56	2.60	4.96	
Total (lbs/hr)	5.46	5.46	5.46	1.59	1.73	0.59	1.13	

Appendix A: Emission Calculations
PLANT 2 ANODEMIX

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ANODEMIX

MATERIALS SPECIFICATION AND THROUGHPUT

Material Name	Physical Characteristics						Process Information			Process
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Max Volume Used	Annual Usage	Process Temp.	
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	
MICELLCMC GB-S01 (CMC-2500)	13.29	240.21	0.00	0.00	0.00%	100.00%	41,369	275	86	CMC Booth (#5-8) CMC Silo (#5-8) CMC Mixer (#13-24) CMC Storage Tank (#25-48) PD Mixer (#25-48)
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	16.62	12.01	0.00	0.00	0.00%	100.00%	3,656,866	30,386	86	Anode Inlet (#49-96) Anode Silo (#49-96) Anode Mixer Hopper (#25-48) PD Mixer (#25-48)
Styrene Butadiene Rubber (SBR) - HCM-815)	8.40	158.24	0.00	0.041	0.49%	48.00%	15,893	67	86	PD Mixer (#25-48)

VOC AND HAP EMISSIONS

ANODE MIX TANKS							VOC Emissions[2], Uncontrolled			
Tank Types	Contents	Capacity (gal)	Total Throughput (tpy)[6]	Quantity	Tank Throughput (tons/yr/tank)	EF Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr
PD Mixer (24)	VOC = SBR	608	67	24	3	Mass Balance	27.15	0.07	651.61	0.33
Total for all Units		**608**	**67**	**24**	**3**		**27.15**	**0.07**	**651.61**	**0.33**

[2]VOC emissions calculated throughput times emission factor.
[3]Water is assumed to have no VOC emissions
[4]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]
[5]Based on MTI formula estimate that SBR is 2.25% of the total volume of slurry.
VOC content for SBR based on SDS from Euclid chemical dated 05.2021

PARTICULATE EMISSIONS

ANODE MIXING				Particulate Emissions, Uncontrolled			Bagfilter Control Efficiency[7]	Particulate Emissions, Controlled		
Powder Material Used in Anode Mixing	Total Annual Throughput (tons)	Emission Calculation Basis[8]	PM Emission Factor[8]	lb/hr	lb/yr	ton/yr	%	lb/hr	lb/yr	ton/yr
MICELLCMC GB-S01 (CMC-2500)	275	Similar Facility	0.5%	0.31	2,750	1	98.00%	6.28 E-03	55.00	0.0
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	30,386	Similar Facility	0.5%	34.69	303,860	152		0.69	6,077.20	3.0
Total				**35.00**	**306,610**	**153.305**		**0.70**	**6,132.20**	**3.1**

[7]Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%.
[8]LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021

Unlimited PTE

Emissions Unit	PM	PM10	PM2.5 *	VOC	Stack
CMC Booth (#5-8) & Anode Conductive Powder Booth (#5-8)	0.34	0.34	0.34	-	02-PEF-01-02
CMC Silo (#5-8) & Anode Conductive Powder Silo (#9-16)	0.34	0.34	0.34	-	
CMC Mixer (#13-24)	0.34	0.34	0.34	-	
CMC Storage Tank (#25-48)	-	-	-	-	
PD Mixer (#25-48)	38.33	38.33	38.33	0.33	
Anode Inlet (#17-32)	37.98	37.98	37.98	-	
Anode Silo (#17-32) & Anode Mixer Hopper (#25-48)	75.97	75.97	75.97		
Storage Tank (#49-96)	-	-	-	-	
Coater Buffer Tank (#11-20)	-	-	-	-	
total TPY	153.31	153.31	153.31		

Controlled PTE

Emissions Unit	PM	PM10	PM2.5 *	VOC	Stack
CMC Booth (#5-8) & Anode Conductive Powder Booth (#5-8)	0.01	0.01	0.01	-	02-PEF-01
CMC Silo (#5-8) & Anode Conductive Powder Silo (#9-16)	0.01	0.01	0.01	-	
CMC Mixer (#13-24)	0.01	0.01	0.01	-	
CMC Storage Tank (#25-48)	-	-	-	-	
PD Mixer (#25-48)	0.77	0.77	0.77	0.33	
Anode Inlet (#17-32)	0.76	0.76	0.76	-	
Anode Silo (#17-32) & Anode Mixer Hopper (#25-48)	1.52	1.52	1.52		
Storage Tank (#49-96)	-	-	-	-	
Coater Buffer Tank (#11-20)	-	-	-	-	

CE: 0.75
0.25

limited PTE

Emissions Unit	PM	PM10	PM2.5 *	VOC	Stack
CMC Booth (#5-8) & Anode Conductive Powder Booth (#5-8)	0.09	0.09	0.09	-	02-PEF-01
CMC Silo (#5-8) & Anode Conductive Powder Silo (#9-16)	0.09	0.09	0.09	-	
CMC Mixer (#13-24)	0.09	0.09	0.09	-	
CMC Storage Tank (#25-48)	-	-	-	-	
PD Mixer (#25-48)	9.58	9.58	9.58	0.33	
Anode Inlet (#17-32)	9.50	9.50	9.50	-	
Anode Silo (#17-32) & Anode Mixer Hopper (#25-48)	18.99	18.99	18.99		
Storage Tank (#49-96)	-	-	-	-	
Coater Buffer Tank (#11-20)	-	-	-	-	
total TPY	38.33	38.33	38.33		
Total (lb/hr)	8.75	8.75	8.75		

Appendix A: Emission Calculations

USEDNMP STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

VOC Emissions

Process ID USEDNMP STORE
Criteria Pollutant Emission Rates Solvent recovery tanks

Material Name[1]	Process	Physical Characteristics						Process Information			VOC Emissions
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Recovered NMP[4]		Process Temp.	Uncontrolled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year
NMP (N-Methyl-2-Pyrrolidone), Recovered	Used/Recovered NMP Storage	8.62	99.13 g/mol	0.32 hPa (20 ° C)	8.62	100%	0%	3,590,451	15,469	95.00	See Tank VOC Emissions in Table Below
								Total for All Products (lb/year):			
								Total for All Products (lb/hour):			
								Total for All Products (ton/year):			

Used/Recovered NMP Storage Tank							VOC Emissions, Uncontrolled				ACT Control Efficiency[3]	VOC Emissions, Controlled			
Tank Types	Contents	Capacity (gal)	Maximum Annual Throughput[4] (gal)	Quantity	Maximum Throughput per Tank (gal)	Emission Calculation Basis	lb/yr/tank[3]	lb/hr	lb/yr	ton/yr	%	lb/yr/tank[3]	lb/hr	lb/yr	ton/yr
Used/Recovered NMP Storage Tank	Recovered NMP	7,925	3,590,451	2	1,795,226	TankESP	15.16	3.46 E-03	15.16	7.58 E-03	70%	4.55	1.04 E-03	9.10	4.55 E-03

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).
[3]Tank VOC emissions calculated using BREEZE TanksESP
[4]The maximum annual recovered NMP amount is 99% of the total annual NMP usage for the facility

Appendix A: Emission Calculations
PLANT 2 ANODECOAT-DRYING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ANODECOAT/DRYING
ACline5-ACline8

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]		
		Density	Molecular Weight	VP	VOC As Used / As Applied		Solids	Max Annual Throughput		Process Temp.	Uncontrolled Emissions		Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year		lb/year
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	Anode Coat/Drying	16.62	12.01	0.00	0.00	0.00%	100.00%	0	0.00	86	0.00		0.00
Styrene Butadiene Rubber (SBR) - HCM-815)	Anode Coat/Drying	8.40	158.24	0.00	0.04	0.49%	48.00%	301,964	1,268.25	86	12,380.54		12380.54
Isopropyl Alchohol (Clean)	Anode Coat/Drying	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.63	86	1,250.00		1250.00
CMC2500	Anode Coat/Drying	0.00	0.00	0.00	0.00	--	0.00%	0	0.00	0	0.00		0.00
										Total for All Products (lb/year):	13,630.54		13,630.54
										Total for All Products (lb/hour):	1.56		1.56
										Total for All Products (ton/year):	6.82		6.82

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]Anode Coat Slurry is sprayed on the copper foil substrate and then dried in five (5) furnaces that exhaust directly to the outdoor atmosphere.
[3]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[4]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
PLANT 2 SLITTING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput(each)	Control	Stack
AS5	3,937 in/min	ASBF17- ASBF20	02-DCEF-1
AS6	3,937 in/min	ASBF21- ASBF24	
AS7	3,937 in/min	ASBF25-ASBF28	
AS8	3,937 in/min	ASBF29- ASBF32	
CS5	3,937 in/min	CSBF17- CSBF20	02-DCEF-2
CS6	3,937 in/min	CSBF21- CSBF24	
CS7	3,937 in/min	CSBF25-CSBF28	
CS8	3,937 in/min	CSBF29- CSBF32	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Anode Slitting	Dry	Brass	**0.000472**	**0.0393**	**15,748**	**bagfilter**	**98**	8.70	0.3143049	5	2.91512E-07	944,880	0.28	0.01	1.21	0.02
Cathode Slitting	Dry	Aluminum	**0.000472**	**0.0393**	**15,748**	**bagfilter**	**98**	2.80	0.1011556	5	9.38198E-08	944,880	0.09	0.002	0.39	0.01

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Copper substrate that is used for the Anode has used brass metal to estimate PM emissions as this is a metal that has similar properties to copper.
3. Metal cutting rate (inches/minute) is assumed to be 100 meters per minute per line (or 3,937 inches per minute per line X 4 production lines) similar to the LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021
4. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

Specific Gravity/Fume Generation Table
Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
PLANT 2 ASSEMBLY (General)

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ASSEMBLY
Criteria and HAP Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
DEMAK DK 001 (Gap Filler Hardener)	Assembly	10.10	250.00	<0.00001hPa (20 C)	0.10	1.00%	--	2,972	15	86	300.00		90.00	60.00		18.00
DMC (Di Methyl Carbonate)	Assembly, Innovation	8.81	90.08	1.10	0.00	0.00%	0.00%	6,798	30	86	0.00		0.00	0.00		0.00
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2,493.33	70%	748.00	0.00	70%	0.00
P-80 Grip-It	Pack/Assembly	8.30	18.00	0.46	0.01	0.10%	3.00%	120	0.50	86	1.00		0.30	0.00		0.00
SEPUR 114FR THIXO - THIXO/L -FV THIXO (Gap Filler Resin)	Assembly	12.67	362.40	0.00	0.00	0.00%	62.00%	15,783	100	86	0.00		0.00	0.00		0.00
Henkel Technomelt PS 8210 EV (Hotmelt Resin)	Assembly	8.14	--	Negligible	0.00	0.00%	100.00%	59,191	241	86	0.00		0.00	0.00		0.00
								Total for All Products (lb/year):			**2,794.33**		**838.30**	**60.00**		**18.00**
								Total for All Products (lb/hour):			**0.32**		**0.10**	**0.01**		**0.00**
								Total for All Products (ton/year):			**1.40**		**0.42**	**0.03**		**0.01**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2] Assembly includes general battery assembly, notching, terminal welding, can-cap welding, and electrolyte filling.
[3]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

PM emissions

Material Name	Process	Maximum Annual Throughput	Total PM EF*	PM10 EF*	Total PM	PM10	PM2.5	Total PM EF*	PM10 EF*
		Tons/year	lbs/tons	lbs/tons	tons/year	tons/year	tons/year	tons/year	tons/year
Lime	Duct Lime Injection	6	0.0048	0.0028	1.44E-05	8.40E-06	8.40E-06	0.0000288	1.68E-05

* EF is Weigh hopper loading from TABLE 11.12-2 (ENGLISH UNITS) EMISSION FACTORS FOR CONCRETE BATCHING
PM 10 = PM 2.5

Appendix A: Emission Calculations
PLANT 2 TERMINAL WELD

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (?)	Control ID	Stack ID
LPW5-1 to LPW5-2	897 cells/hr	LPWBF9 to LPWBF10	02-DCEF-7
LPW6-1 to LPW6-2	897 cells/hr	LPWBF11 to LPWBF12	
LPW7-1 to LPW7-2	897 cells/hr	LPWBF13 to LPWBF14	
LPW8-1 to LPW8-2	897 cells/hr	LPWBF15 to LPWBF16	

Particulate Emissions																		
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions					
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)	Limited %CE	Limited (lb/hr)	Limited (ton/yr)
Anode Terminal Weld	Dry	Brass	0.4606299	0.114173	76	bagfilter	98	8.7	0.31	5	8.26E-04	4.560	3.7688	0.0754	16.5073	0.3301	90	0.3769	1.650726626
Cathode Terminal Weld	Dry	Aluminum	0.4606299	0.114173	76	bagfilter	98	2.8	0.10	5	2.66E-04	4.560	1.2129	0.0243	5.3127	0.1063	90	0.1213	0.531268339

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing which is the metal type selected for can-cap welding.
3. Metal welding rate (inches/minute) is assumed to be 6.46 cm per cell for both anode and cathode combined and 2,619,240 cells per month
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)

2619240 cells per month
Weld per cell is 6.46 cm in length (for terminal weld - for both anode and cathode combined

Total laser weld speed (inches/minute) = 76 inches/min for all 4 lines

Specific Gravity/Fume Generation Table
Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
PLANT 2 NOTCHING-STACKING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control ID	Stack ID
S5_1 to S5_32	897 cells/hr	S5_BF1 to S5_BF32	02-DCEF-3
S6_1 to S6_32	897 cells/hr	S6_BF1 to S6_BF32	02-DCEF-4
S7_1 to S7_25	897 cells/hr	S7_BF1 to S7_BF25	02-DCEF-5
S8_1 to S8_25	897 cells/hr	S8_BF1 to S8_BF25	02-DCEF-6

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed - Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Anode Notching	Dry	Brass	**0.000472**	**0.0393**	**15,478**	**bagfilter**	**98**	8.7	0.3143049	5	2.91512E-07	928,685	2.71E-01	5.41E-03	1.19E+00	2.37E-02
Cathode Notching	Dry	Aluminum	**0.000472**	**0.0393**	**15,478**	**bagfilter**	**98**	2.8	0.1011556	5	9.38198E-08	928,685	8.71E-02	1.74E-03	3.82E-01	7.63E-03
												Total:	3.58E-01	7.16E-03	1.57E+00	3.13E-02

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Copper substrate that is used for the Anode has used brass metal to estimate PM emissions as this is a metal that has similar properties to copper.
3. There is not a representative emission factor for the notching process (which is cutting of the metal subtrate aluminum and copper using a die (die cutter)). We believe it is conservative to use plasma / laser cutting emission factors to estimate the PM emissions from Notching.
5. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
6. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
7. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%
4. Working parameter :

Cells Per month	2619240	
Cut length per cell :	657.43	cm
Total laser weld speed (inches/minute) =	15,478	inches/min

Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
PLANT 2 CAN-CAP WELD

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (?)	Control ID	Stack ID
CanCap5-1 to CanCap5-2	897 cells/hr	CANCAPBF9 to CANCAPBF10	02-DCEF-8
CanCap6-1 to CanCap6-2	897 cells/hr	CANCAPBF11 to CANCAPBF12	
CanCap7-1 to CanCap7-2	897 cells/hr	CANCAPBF13 to CANCAPBF14	
CanCap8-1 to CanCap8-2	897 cells/hr	CANCAPBF15 to CANCAPBF16	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
CAN-CAP WELD	Dry	Aluminum	0.0354331	0.0393701	152	bagfilter	98	2.8	0.1012	5	7.05563E-06	9,125	0.0644	0.0013	0.2820	0.0056

Sources
AP-42 Chapter 12 Related Emission Factor Documents
https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing which is the metal type selected for can-cap welding.
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

3. Working parameter :

Cells per month	2619240		
Weld length per cell :	6.46	cm	
Total laser weld speed (inches/minute) =	152	inches/min	**for all 4 lines**

Appendix A: Emission Calculations
PLANT 2 ELECTROLYTE FILLING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control	Stack
EFM33-EFM40	897 cells per hour	CAT-04a, CAT-04, CAT-04c, CAT-04d, & CAT-04e Standby	S-4a, S-4b, S-4c, S-4d, and S-4e Standby
EFM41-EFM48	897 cells per hour		
EFM49-EFM56	897 cells per hour		
EFM57-EFM64	897 cells per hour		

VOC Emissions

Calculate VOC Emissions of Electrolyte Solution from filling each battery cell.
Use USEPA Equation for Evaporative Losses from a Spill (see references below)

QR = (0.284 x u^0.78 x MW^2/3 x A x VP / (82.05 x T)

u =	**0.5**	**m/s**
MW =	**0.22**	**lb/mol**
A =	**0.000844962**	**sq ft.**
VP =	**55.364**	**mm Hg at 25 deg C**
T =	**294**	**K**

QR = lb/min per cell (calculation is for 1 cell)
u = assumed to be conservative value of air motion (speed) across electrolyte Ssel pin = 10 feet per min = 0.5 m/s
MW = molecular weight of electrolyte solution = used MW of highest concentration component = DMC (dimethyl carbonate) = 0.22 lb/mol
A = area of electrolyte filling pin hole = assumed (conservative - large) diameter of electrolyte filling hole of cylindrical cell = 1 cm = 0.0328 feet = 0.000845 sq. feet
VP = vapor pressure for the electrolyte is not available so we used DMC's vapor pressure = 55.364 mmHg @ 25 deg C (based on vapor pressure of dimethyl ca
T = temperature at the surface of the cell electrolyte filling hole is assumed to be room temperature = 70 deg F or 294 deg K.

2.799 Kpa (kilo pascels)

QR = 0.284 x ($0.5^{0.78}$m/s)*($0.22^{0.6667}$lb/mol) x 0.000845 sq. ft x 55.364mmHg ÷ (82.05*294K)
QR = 1.17546E-07 lb VOC/min/cell

(Multiply QR by length of time that the filling hole is open which according to Patent No. US6387561B1[1] can be up to 2 hours)

QR =	**1.41055E-05**	**lb VOC/cell**		**No. of Cells / yr**	**31,430,880**	**cells produced per year**	**7,857,720 cells / yr / line**
QR =	**443.35**	**lb VOC/year**	**Uncontrolled**				**897.00 cells/hr/line**
QR =	**0.22**	**tons VOC/year**	**Uncontrolled**		**58.2MM**		
QR =	**0.05**	**lb VOC/hr**	**Uncontrolled**		**62. MM**		
QR =	**133.00**	**lb VOC/year**	**Controlled**				
QR =	**0.07**	**tons VOC/year**	**Controlled**				
QR =	**0.02**	**lb VOC/hr**	**Controlled**				

[1] *Patent No. US6387561B1Electrolyte-solution filling method and battery structure of lithium secondary battery states:*
"It is confirmed by FIG. 3 that, according to a conventional electrolyte solution filling method, ***approximately two hours*** *of the electrolyte solution impregnation time period were required by the time when the alternate impedance dropped to a certain constant value, while, according to the present invention, the equivalent impregnation processing could be implemented in about 30 minutes and the cut in time for producing the battery can be attained."*

Appendix A: Emission Calculations
PLANT 2 TAPING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (?)	Control ID	Stack ID
TM-9	3,588 cells/hr	TMBF33-TMBF36	02-EF-301-302
TM-10		TMBF5-TMBF8	
TM-11		TMBF9-TMBF12	
TM-12		TMBF13-TMBF16	
TM-13		TMBF17-TMBF20	
TM-14		TMBF21-TMBF24	
TM-15		TMBF25-TMBF60	
TM-16		TMBF61-TMBF64	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (inches)	Kerf (width of cut in inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
TAPING	Dry	Aluminum	0.000472	0.0393	15.478	BagFilter	98	2.8	0.1011556	5	9.38198E-08	928.685	0.087	0.002	0.382	0.008

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing "seal" which is the metal type selected for cylindrical cans.
3. Metal cutting rate (inches/minute) is assumed to be 100 meters per minute per line - conservative for seal welding - (or 3,937 inches per minute per line X 4 production lines) similar to the LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

Cells per month	2619240		
Cut length per cell :	657.43	cm	
Total laser cut speed (inches/minute) =	15,478	inches/min	for all 4 lines

Appendix A: Emission Calculations
PLANT 2 SEALING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control ID	Stack ID
SPW5-1 to SPW5-2	897 cells/hr	SPWBF5	03-EF-301-30
SPW6-1 to SPW6-2	897 cells/hr	SPWBF6	
SPW7-1 to SPW7-2	897 cells/hr	SPWBF7	
SPW8-1 to SPW8-2	897 cells/hr	SPWBF8	

Particulate Emissions																
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
SEAL	Dry	Aluminum	0.000472	0.00472441	3	BagFilter	98	2.8	0.1011556	5	1.12785E-08	170	1.91E-06	3.82E-08	8.37E-06	1.67E-07

Sources
42 Chapter 12 Related Emission Factor Docum
ttps://www3.epa.gov/ttn/chief/efdocs/welding.pd

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing "seal" which is the metal type selected for cylindrical cans.
3. Metal cutting rate (inches/minute) is assumed to be 1 cm in diameter for each cell - conservative for seal welding would be seal weld of the perimeter which equals
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

Cells per month 2619240
Weld length per cell : 0.12 cm
Total laser weld speed= 3 inches/min for all 4 lines

Appendix A: Emission Calculations
PLANT 2 FORMATION

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput	Control ID	Stack
HVC4-HVC8	3,588 cells/hr total	CAT-05a, CAT-05b & CAT-05c /Standby	S-5a, S-5b, S-5c, S-5d, and S-5e Standby

Criteria Pollutant Emission Rates

The Formation process includes a round of aging in electrolyte solution, charging/discharging, a second round of aging, output testing, insulating, visual inspections, and packaging.

VOC/CO2/H2 Emissions

Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017

Calculate vent-gas released during formation

From research conducted by others, calculate the total gas amount (by weight) emitted per cell

Possible Amount of Gas Emitted during Formation from 1 Cell (used Worst Case Value)

Device (LIB Cells)	Total Gas Emission Amount/mmol/cell[1]
ICR18650-32A (NCA[2])	6.2
INR18650-35E (NCA[2])	3.69
INR18650-MJ1 (NCA[2])	1.64

[1] *1st Venting Condition of a damaged cell conservatively represents LIB Formation initial charging/discharging*
[2] *Table 1 "Holistic methodology for characterisation of thermally induced…….RSC Advances, 2017"*

Formation Pollutants Molecular Weights

Formation Pollutants	Molecular Weight		
	g/mol	g/mmol	lb/mmol
H2	2.016	0.002016	4.44053E-06
CO2	44.01	0.04401	9.69383E-05
CO	28.01	0.02801	6.1696E-05
CH4	16.04	0.01604	3.53304E-05
VOCs	78.95	0.07895	0.000173899

Formation Gas Composition	Percent by Weight[3]	Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate
	(%)	(lb/cell[4])	(lb/hr)	(lb/yr)	(tons/yr)	(lb/hr)	(lb/yr)	(tons/yr)
H2	2.4%	6.69E-07	2.40E-03	21.03	0.01	2.40E-03	21.03	0.01
CO2	82.2%	4.94E-04	1.77E+00	15,526.11	7.76	1.77E+00	15,526.11	7.76
CO	0.0%	0.00E+00	-	-	-	-	-	-
CH4	0.0%	0.00E+00	-	-	-	-	-	-
VOCs	15.4%	1.66E-04	5.95E-01	5,211.96	2.61	1.78E-01	1,563.59	0.78
Total	100.0%							

[3] *Formation Gas Composition emission percent by weight from "Table 1, "Detection of Li-ion battery failure…..etransportion 7 (2021) 100100"*
[4] *Annual # of LIB Cells Produced at Kokomo Indiana = 31,430,880 cells / yr*
[5] *Control Efficiency of the CAT Towers= 70%*
[6] Assumed that CAT Towers will not destroy CO2 or H2 - 0% control efficiency (conservative assumption)

Table 1, "Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor

HVC : Heating Vacuum Charger

HVC performs the following three treatments simultaneously on the cell where the electrolyte injection has been completed.
1. Heating
2. Connect the vacuum tube (hopper) to discharge gas inside the cell
3. Charge

Table 1, "Detection of Li-ion battery failure and venting with Carbon Dioxide Sensors, Ting Cai, Puneet Valecha, Vivian Tran, Brian Engle, Anna Stefanopoulou, Jason Siegel, eTransportation 7 (2021) 100100"

Appendix A: Emission Calculations
PLANT 2 MODULE TEST

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (per unit)	Venting
SD5- SD8	897cells/hour	indoors
HBB5- HBB8	897cells/hour	
PSA9-PSA16	897cells/hour	
CUS9-CUS16	897cells/hour	

Criteria and HAP Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
Sonderhoff Fermapor K31-B-4	Module, Pack	9.91	250.25	0.04	0.26	2.61%	0.00%	101	0.50	86	26.10	0%	26.10	6.53	0%	6.53
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2493.33		2493.33	0.00		0.00
										Total for All Products (lb/year):	**2,519.43**		**2,519.43**	**6.53**		**6.53**
										Total for All Products (lb/hour):	**0.29**		**0.29**	**0.0007**		**0.00074**
										Total for All Products (ton/year):	**1.26**		**1.26**	**0.0033**		**0.00326**

P = Vapor pressure of product [Pa]
V = Volume displaced [L]
n = moles of gas [mol]
R = Ideal Gas Constant [8,314 L-Pa/mol-K]
T = Temperature [K]

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will form the cells into a module (8-12 cells) and initial testing will be conducted.
[3]VOC Emissions are not controlled in this area.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
FRAME SIDE / BUSBAR WELDING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control Device ID	Stack ID
FSW5	897cells/hour	MBF13	03-EF-301-302
BW5	897cells/hour	MBF14	
FSW6	897cells/hour	MBF15	
BW6	897cells/hour	MBF16	
FSW7	897cells/hour	MBF17	
BW7	897cells/hour	MBF18	
FSW8	897cells/hour	MBF19	
BW8	897cells/hour	MBF20	
FEW5	897cells/hour	MBF21	
FEW6	897cells/hour	MBF22	
FEW7	897cells/hour	MBF23	
FEW8	897cells/hour	MBF24	

Particulate Emissions															
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed - Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Frame Side Weld	Dry	Aluminum	0.03	0.02	152	bagfilter	98	2.8	0.10	5	4.29687E-06	9,125	0.0392	0.0008	0.1717	0.0034
Busbar Weld	Dry	Aluminum	0.06	0.03	152	bagfilter	98	2.8	0.10	5	9.28991E-06	9,120	0.0847	0.0017	0.3711	0.0074
Frame End Weld	Dry	Aluminum	0.05	0.03	152	bagfilter	98	2.8	0.10	5	6.67149E-06	9,125	0.0609	0.0012	0.2667	0.0053
													0.1848	0.0037	0.8095	0.0162

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
3. Metal welding rate (inches/minute) is assumed to be 25 cm per cell and 675,000 cells per month - conservative for can-cap welding - (or 152 inches per minute for all 4 production lines)
4. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

cells per month **2,619,240**
weld length per cell **6.46**
Total laser weld speed= **152** **inches/min for all 4 lines**

Appendix A: Emission Calculations
Reciprocating Internal Combustion Engines - Natural Gas
PLANT 2 4-Stroke Rich-Burn (4SRB) Engines

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Maximum Output Horsepower Rating (hp)	700
Brake Specific Fuel Consumption (BSFC) (Btu/hp-hr)	7600
Maximum Hours Operated per Year (hr/yr)	500
Potential Fuel Usage (MMBtu/yr)	2660
High Heat Value (MMBtu/MMscf)	1020
Potential Fuel Usage (MMcf/yr)	2.61

		Potential Emissions (tons/yr)										
Criteria Pollutants	Emission Factor (lb/MMBtu)	EMGEN-11	EMGEN-12	EMGEN-13	EMGEN-14	EMGEN-15	EMGEN-16	EMGEN-17	EMGEN-18	EMGEN-19	EMGEN-20	**Total (ton/year)**
PM*	9.50E-03	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	**0.1264**
PM10*	1.94E-02	0.03	0.03	0.05	0.06	0.08	0.11	0.14	0.19	0.25	0.34	**1.2766**
PM2.5*	1.94E-02	0.03	0.03	0.05	0.06	0.08	0.11	0.14	0.19	0.25	0.34	**1.2766**
SO2	5.88E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	**0.0078**
NOx	2.21E+00	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	**29.3930**
VOC	2.96E-02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	**0.3937**
CO	3.72E+00	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	**49.4760**

*PM emission factor is for filterable PM-10. PM10 emission factor is filterable PM10 + condensable PM.
PM2.5 emission factor is filterable PM2.5 + condensable PM.

Hazardous Air Pollutants (HAPs)

		Potential Emissions (tons/yr)										
Pollutant	Emission Factor (lb/MMBtu)	EMGEN-11	EMGEN-12	EMGEN-13	EMGEN-14	EMGEN-15	EMGEN-16	EMGEN-17	EMGEN-18	EMGEN-19	EMGEN-20	**Total (ton/year)**
Acetaldehyde	2.79E-03	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.037
Acrolein	2.63E-03	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.035
Benzene	1.58E-03	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.021
1,3-Butadiene	6.63E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.009
Formaldehyde	2.05E-02	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.273
Methanol	3.06E-03	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.041
Total PAH**	1.41E-04	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
Toluene	5.58E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.007
Xylene	1.95E-04	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
	Total	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	

HAP pollutants consist of the nine highest HAPs included in AP-42 Table 3.2-3.
**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

total HAPS 0.427
Highest single HAP 0.273 Formaldehyde

Methodology
Emission Factors are from AP-42 (Supplement F, July 2000), Table 3.2-3
Potential Fuel Usage (MMBtu/yr) = [Maximum Output Horsepower Rating (hp)] * [Brake Specific Fuel Consumption (Btu/hp-hr)] * [Maximum Hours Operated per Year (hr/yr)] / [1000000 Btu/MMBtu]
Potential Emissions (tons/yr) = [Potential Fuel Usage (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2000 lb/ton]

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide

Appendix A: Emission Calculations

PLANT 2 COOLINGTOWERS

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Appendix A: Emission Calculations
Mechanical Draft Cooling Tower

Pre-Modification:

Cooling Amount 1,538 tons
3 gpm/ton

Circulating water flow rate (W_c) per tower	4,615 gal/min
Drift loss	0.020%
Blowdown/drift TDS	350 mg/l
PM10 Mass Fraction	55.840%
PM2.5 Mass Fraction	0.21%

	Total Liquid Drift	PM		PM10		PM2.5	
	(lb/10^3 gal)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Cooling Tower 1	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 2	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 3	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 4	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 5	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 6	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 7	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 8	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 9	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 10	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 11	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 12	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 13	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 14	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 15	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 16	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 17	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 18	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 19	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 20	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 21	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 22	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 23	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 24	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 25	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 26	1.67	0.16	0.71	0.09	0.40	0.00	0.00
	Total	**4.20**	**18.41**	**2.35**	**10.28**	**0.01**	**0.04**

Post-Modification:

Cooling Amount 1,833 tons
3 gpm/ton

Circulating water flow rate (W_c) per tower	5,500 gal/min
Drift loss	0.020%
Blowdown/drift TDS	350 mg/l
PM10 Mass Fraction	55.840%
PM2.5 Mass Fraction	0.21%

	Total Liquid Drift	PM		PM10		PM2.5	
	(lb/10^3 gal)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Cooling Tower 1	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 2	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 3	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 4	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 5	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 6	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 7	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 8	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 9	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 10	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 11	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 12	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 13	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 14	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 15	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 16	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 17	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 18	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 19	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 20	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 21	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 22	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 23	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 24	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 25	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 26	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 27	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 28	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 29	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 30	1.67	0.19	0.84	0.11	0.47	0.00	0.00
	Total	**5.78**	**25.31**	**3.23**	**14.14**	**0.01**	**0.05**

	PM		PM10		PM2.5	
	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Plant 1	4.20	18.41	2.35	10.28	0.01	0.04
Plant 1 + Plant 2	5.78	25.31	3.23	14.14	0.01	0.05
Increase in PTE due to Plant 2	**1.58**	**6.90**	**0.88**	**3.86**	**0.00**	**0.01**

Methodology

Methodology ref: par. 2, page 13.4-3, AP-42 (1/95)

Total Liquid Drift (lb/10^3 gal) = Drift loss (%) / 100 x 8.34 (lb/gal) x 1,000 (gal/10^3 gal)

Emissions (lb/hr) = Total Liquid Drift (lb/10^3 gal) x Circulating water flow rate (gal/min) / 1,000 (gal/ gal 10^3) x 60 (min/hr) x Blowdown/drift TDS (mg/l) / 1,000,000 (mg/l / weight fraction)

Emissions (tons/yr) = Emissions (lb/hr) x 8,760 (hr/yr) / 2,000 (lb/ton)

PM10 and PM2.5 mass fractions were estimated using, "Calculating Realistic PM10 Emissions from Cooling Towers," by Reisman, J. and Frisbie, G.

Appendix A: Emission Calculations
FIREPUMP

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

PLANT 2 Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity (MMBtu/hr)	8.7
Maximum Hours Operated per Year	500
Potential Throughput (MMBtu/yr)	4,330
Sulfur Content (S) of Fuel (% by weight)	0.500

1237 BHP
8659000 btu/hr
8.659 mmbtu/hr

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.10	0.0573	0.0556	0.505 *(1.01S)*	3.2 **see below	0.09	0.85
Potential Emission in tons/yr	0.22	0.12	0.12	1.09	6.93	0.19	1.84
Potential Emission in lb/hr	0.87	0.50	0.48	4.37	27.71	0.78	7.36

*PM emission factor is from AP-42 Table 3.4-1. The PM10 and PM2.5 emission factors for are from AP-42 Table 3.4-2. The PM10 emission factor is the sum of filterable PM10 and condensable particulate. The PM2.5 emission factor is the sum of filterable particulate less than 3 um and condensable particulate.

**NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBtu

Hazardous Air Pollutants (HAPs)	Pollutant						Total PAH
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	HAPs***
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04	7.89E-05	2.52E-05	7.88E-06	2.12E-04
Potential Emission in tons/yr	1.68E-03	6.08E-04	4.18E-04	1.71E-04	5.46E-05	1.71E-05	4.59E-04
Potential Emission in lb/hr	3.84E-04	1.39E-04	9.54E-05	3.90E-05	1.25E-05	3.89E-06	1.05E-04

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Potential Emission of Total HAPs (tons/yr)	**3.41E-03**

Methodology
Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4.
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

Appendix A: Emission Calculations
PLANT 2 MAINT - WELDING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID MAINTENANCE
Criteria Pollutant Emission Rates

Welding Emissions: Emission factors vary by process used and electrode type.

Emission Factor: Table 12.19-1, AP-42
Maximum amount of electrode used (conservative assumption for typical maint dept): 5,000 *pounds carbon steel electrode*
Gas Metal Arc Welding (GMAW) used - E70S-#.

PM10 Emission Factor:	5.2	lb PM10/1000 lb electrode			
PM10 = (5.2 lb PM10 / 1000 lb electrode) * 33 lb electrode /yr					
Manganese = HAP Content % * PM10 lb/yr					
Typical Manganese HAP Content (%) =	5%				
Total PM10 Emission Rate (lb/yr) =	26.0	lb PM10/yr	divided by	8760	hours/yr
Manganese Emission Rate (lb/yr) =	1.30	pounds Manganese/yr		8760	hours/yr
Total PM10 Emission Rate (lb/hr) =	**2.97E-03**	lb PM10/hr			
Manganese Emission Rate (lb/hr) =	**1.48E-04**	lb Manganese/hr			
Total PM10 Emission Rate (tons/yr) =	**1.30E-02**	tons PM10/yr			
Manganese Emission Rate (tons/yr) =	**6.50E-04**	tons Manganese/yr			

Appendix A: Emission Calculations
PLANT 2 MAINT - Paint Booth

Company Name: ıs Energy LLC
Source Address: komo, Indiana
Permit Number: ᵀ-45648-00093
SSM No. ᵀ-47602-00094
SPM No. ᵀ-47628-00095
Reviewer: Sidhant Paul

TOUCH UP PAINT EMISSIONS SUMMARY

Pollutant	HAP?	Cans per Week	oz/week	Gal/week	Gal/yr	lb Pollutant / gal	PM CE	Uncontrolled (lb/hr)	Uncontrolled (lb/yr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (lb/yr)	Controlled (tons/yr)
VOC Emissions	Not Applicable	5	60	0.47	24.4	3.45		0.010	84.1	4.20E-02	0.010	84.1	4.20E-02
PM Emissions	Not Applicable	5	60	0.47	24.4	3.00	99%	0.008	73.1	3.66E-02	0.0001	0.0005	2.38E-07
Isobutyl Acetate	No	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03
Methyl Acetate	No	5	60	0.47	24.4	3.23		0.009	78.6	3.93E-02	0.009	78.6	3.93E-02
Talc	No	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03
Toluene	Yes	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03

From the Krylon Touch up paint SDS [1]Control Efficiency obtained from the manufacturer's specification below.

Key Assumptions

12	oz per aerosol can
128	oz/gal
99%	paint booth filter control efficiency for PM emissions
100%	transfer efficiency (conservative assumption)
5	cans used per week every week of the year (conservative assumption)
100%	All the contents of the can are used for each part or tool painted (conservative assumption)

Appendix A: Emission Calculations
ELECTROLYTE STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

VOC Emissions

Process ID ELECTROLYTE STORAGE
Criteria Pollutant Emission Rates
The Electrolyte is stored in a bulk storage tank and is sent via pipe using nitrogen gas. There are tank breathing and working emissions and fugitive emissions from coupler and safety valves.

Material Name[1]	Process Information						Connectors			Valves			VOC Emissions[4]		
	Density	Vapor Press.	VOC As Used / As Applied		Maximum Annual Throughput		Count	Emission Factor[4]	VOC Emissions	Count	Emission Factor[4]	VOC Emissions	Uncontrolled Emissions	Control Efficiency[2]	Controlled Emissions
	lbs/gal	psia	lbs/gal	%	Gal/year	Tons/year		lb/hr/ea	lb/hr		lb/hr/ea	lb/hr	lb/year	%	lb/year
SoulBrain Electrolyte	10.20	Not Avail	8.16	80.00%	3,237,312	16,510	15	0.0005	0.0075	15	0.0035	0.0525	525.60	70%	157.68
												Total for All Products (lb/year):	525.60		157.68
												Total for All Products (lb/hour):	0.06		0.02
												Total for All Products (ton/year):	0.26		0.08

[1] *This is the list of utilized materials is based on comparable facilities (Samsung-SDI Korea Plant).*

Electrolyte Storage Tank							VOC Emissions[3], Uncontrolled				Control Efficiency[2]	VOC Emissions[3], Controlled			
Tank Types	Contents	Capacity (gal)	Total Throughput (gal)	Quantity	Throughput per Tank (gal)	Emission Calculation Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr	%	lb/yr/tank	lb/hr	lb/yr	ton/yr
Electrolyte Storage Tank	Virgin Electrolyte	528	3,237,312	1	3,237,312	TankESP	0.29	3.33 E-05	0.29	1.46 E-04	70%	0.20	2.33 E-05	0.20	1.02 E-04
Total for all Units								**3.33 E-05**	**0.29**	**1.46 E-04**			**2.33 E-05**	**0.20**	**1.02 E-04**

Control Device	Process	Quantity (Sets)	Capture Efficiency	Control Efficiency[2]	Total Control	Internal Diameter	Height	Temperature	Operational Flow Rate per Unit	
			%	%	%	ft	ft	F	ACFM	SCFM
CAT-06	Electrolyte Storage	1	100%	70%	70%	3.25	27.48	86	24,720	22,945
Total for all Units									**24,720**	**22,945**

[2] *Electrolyte storage will be in a building with CAT Tower Controls (APC ID: CAT-06), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).*
[3] *Tank VOC emissions calculated using BREEZE TanksESP*
[4] *Fugitive VOC emissions will occur from valves and connectors inside the storage room (but will be controlled by the CAT Tower) which have been estimated as follows:*
Emission factors are based on TCEQ Fugitive Guidance document APDG 6422, dated June 2018, Table 1 (https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/fugitive-guidance.pdf)
Emission factors for Light Liquid are used because of the vapor pressure of the electrolyte.
Emission factors for SOCMI Without Ethylene are used due to product components listed on SDS.
Emissions [lb/hr] = Fugitive Emission Factor [lb/hr/component] x Count of Components [#]

Appendix A: Emission Calculations
PLANT 2 INNOVATION

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

VOC Emissions

Process ID INNOVATION
Criteria Pollutant Emission Rates

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year
DMC (Di Methyl Carbonate)	Assembly, Innovation	8.81	90.08	1.10	0.00	0.00%	0.00%	14	0.06	86	0.00	0%	0.00
										Total for All Products (lb/year):	**0.00**		**0.00**
										Total for All Products (lb/hour):	**0.00**		**0.00**
										Total for All Products (lb/day):	**0.00**		**0.00**
										Total for All Products (ton/year):	**0.00**		**0.00**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will be R&D for LIB production
[3]VOC Emissions are not controlled.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
PLANT 2 PACKING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID PACKING
Criteria Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
Acetone (Clean)	Pack	0.00	0.00	0.00	0.00	0.00%	0.00%	0	0.00	0	0.00	0%	0.00	0.00	0%	0.00
Sonderhoff Fermapor K31-B-4	Module, Pack	9.91	250.25	0.04	0.26	2.61%	0.00%	101	0.50	86	26.10		26.10	6.53		6.53
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2,493.33		2,493.33	0.00		0.00
P-80 Grip-It	Pack/Assembly	8.30	18.00	0.46	0.01	0.10%	3.00%	120	0.50	86	1.00		1.00	0.00		0.00
Dr Schultz PU- Hot Cleaner	HVS pack	9.17	0.00	0.00	0.00	0.00%	0.00%	47,527	218.01	86	0.00		0.00	0.00		0.00
Kluber Syntheso Glep 1	HVS Pack	8.06	--	0.00	0.00	0.00%	100.00%	248	1.00	86	0.00		0.00	0.00		0.00
										Total for All Products (lb/year):	**2,520.43**		**2,520.43**	**6.53**		**6.53**
										Total for All Products (lb/hour):	**0.29**		**0.29**	**0.0007**		**0.00074**
										Total for All Products (ton/year):	**1.26**		**1.26**	**0.0033**		**0.00326**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will form the cells into a module (8-12 cells) and initial testing will be conducted.
[3]VOC Emissions are not controlled.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations

PLANT 2 USEDNMP STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID USEDBATT STORE
Criteria Pollutant Emission Rates
The Used Battery Storage will have similar emissions to the Formation process. Used Batteries will be sent to the storage room for discharging which will create the gas emissions similar to the discharging during Formation.

VOC/CO2/H2 Emissions

Calculate vent-gas released during formation
From research conducted by others, calculate the total gas amount (by weight) emitted per cell
Possible Amount of Gas Emitted during Formation from 1 Cell (used Worst Case Value)

Device (LIB Cells)	Total Gas Emission Amount/mmol/cell[1]
ICR18650-32A (NCA[2])	6.2
INR18650-35E (NCA[2])	3.69
INR18650-MJ1 (NCA[2])	1.64

[1] *1st Venting Condition of a damaged cell conservatively represents LIB Formation initial charging/discharging*
[2] *Table 1 "Holistic methodology for characterisation of thermally induced…....RSC Advances, 2017"*

Formation Pollutants	Molecular Weight		
	g/mol	g/mmol	lb/mmol
H2	2.016	0.002016	4.44053E-06
CO2	44.01	0.04401	9.69383E-05
CO	28.01	0.02801	6.1696E-05
CH4	16.04	0.01604	3.53304E-05
VOCs	78.95	0.07895	0.000173899

Formation Gas Composition	Percent by Weight[3]	Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate
	(%)	(lb/cell[4])	(lb/hr)	(lb/yr)	(tons/yr)	(lb/hr)	(lb/yr)	(tons/yr)
H2	2.4%	6.69E-07	2.79E-06	0.02	0.00	2.79E-06	0.02	0.00001
CO2	82.2%	4.94E-04	2.06E-03	18.03	0.01	2.06E-03	18.03	0.00902
CO	0.0%	0.00E+00	-	-	-	-	-	-
CH4	0.0%	0.00E+00	-	-	-	-	-	-
VOCs	15.4%	1.66E-04	6.91E-04	6.05	0.00303	2.07E-04	1.82	0.00091
Total	100.0%							

[3] *Formation Gas Composition emission percent by weight from "Table 1, "Detection of Li-ion battery failure…..etransportion 7 (2021) 100100"*
[4] *Annual # of LIB Cells Sent to Used Battery St 36,500 cells / yr*
[5] *Control Efficiency of the CAT Towers= 70%*
[6] Assumed that CAT Towers will not destroy CO2 or H2 - 0% control efficiency (conservative assumption)

Table 1 , "Detection of Li-ion battery failure and venting with Carbon Dioxide Sensors, Ting Cai, Puneet Valecha, Vivian Tran, Brian Engle, Anna Stefanopoulou, Jason Siegel, eTransportation 7 (2021) 100100"
Table 1, "Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017"
"Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017"

Appendix A: Emission Calculations
Material Specs

Company Name: StarPlus Energy LLC
Source Address: 2724 N SS E, Kokomo, Indiana
Permit Number: 067-45649-00063
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

List of All Materials
Material Specifications Index

| | Material Name[1] | MSDS Composition Analysis page no. | Input Material No. from Jason 3-10-23 email | Raw Material Category | Process | Information Source[4] | Contains Federal HAP? | Physical Characteristics | | | | | | Process Information | | | | Maximum (Capacity) Process Material Throughput[2] | | | | | |

Appendix A: Emission Calculations
Throughput basis
Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

Input materials for Kokomo based on Hungary factory #2

Summary
Battery materials consist of Nickel, Cobalt, Aluminum, Copper Lithium, NMP Solvent, electrolyte and other items below.
There are some mechanical parts for the battery modules as well. For specifics please refer to below.

	Input Material	CAS Number	Unit	Hungary Quantity	Potential Throughput (tons/yr)
1	GRAPHITE	7782-42-5	t/year	60,000	30,386
2	Hotmelt RESIN	8042-47-5	t/year	40	241
3	NICKEL COBALT ALUMINIUM OXIDE	1344-28-11303-86-21308-04-912057-24-81314-06-3	t/year	90,000	45,000
4	PVDF (Poly vinylene fluoride)	24937-79-9	t/year	900	500
5	Styrene Butadiene Rubber	25155-30-0100-42-5106-99-07732-18-5	t/year	2,300	1,335
6	CMC(Sodium carboxymethy cellulose)	9004-32-4	t/year	500	275
7	Isopropyl Alchohol(clean)	67-63-0	t/year	10	5
8	Module:Gap filler(resin)	1241-94-7 (5%=<X<7%)	t/year	200	100
9	Module: Gap filler(hardner)	9016-87-9 (60%=<X<70%) 101-68-8 (15%=<X<20%) 6828-35-9 (3%=<X<10%)	t/year	30	15
10	FERMAPOR K31-B-4	9016-87-9	t/year	1	1
11	Aceton(clean)	67-64-1	t/year	1	1
12	NMP (N-METHYL-2-PYRROLIDONE)	872-50-4	t/year	31,000	15,500
13	ELECTROLYTE	21324-40-396-49-1616-38-6623-53-0872-36-6	t/year	30,000	16,510
14	DMC (Di Methyl Carbonate)	616-38-6	t/year	60	30
15	P-80 Grip-it	N/A	t/year	1	1
16	PU- hot cleaner	N/A	t/year	1	1
17	Syntheso Glep 1	N/A	t/year	1	1
18	NaOH(Caustic soda)	1310-73-2	t/year	121	60
19	Ca(OH)2 (calcium-hydroxide)	1305-62-0	t/year	8	4
20	PAC (polialuminium kloride)	12042-91-01327-41-9	t/year	322	161
21	Anionic polymer	- (keverék/mix)	t/year	2,010	1,005
22	Oxalic Acid		t/year	100	50
23	TDS-50HL		t/year	6,000	5,450
24	Copper Foil		t/year		
25	Arctic 1 Diesel		t/year		
	Lime		t/year		6

Appendix A: Emission Calculations

TankESP Annual Emissions Report

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Equations for this site: After 2019 AP-42 revisions H/D ratio: Default 0.5

Tank ID	Tank Diameter (ft)	Tank Type	Product	Throughput (gal)	Bulk Liquid Temperature (degF)	Avg. Liquid Surface Temp. (degF)	Avg. TVP (psia	Includes a landing loss?	Initial fill?	Includes a tank cleaning?	Number of Days	Estimated standing losses (lbs)	Estimated working losses (lbs)	Routine Emissions (lbs)	Non Routine Emissions (lbs)	Total Uncontrolled VOC emissions (lbs)	Total Controlled VOC emissions (lbs)
Binder Mixer Tanks	4.4291339	FRT (no floating roof)	Binder	15,009,514.80	52.880361	53.33583	0.95496139	N	N	N	365	22.191065	6,771.17	6,793.36	0	6,793.36	2,038.01
Binder Storage Tanks	4.4291339	FRT (no floating roof)	Binder	15,009,514.80	52.880361	53.33583	0.95496139	N	N	N	365	15.997638	6,732.27	6,748.27	0	6,748.27	2,024.48
Coater Buffer Tanks	4.4291339	FRT (no floating roof)	Virgin NMP	22,014,620.88	52.880361	53.33583	0.002379151	N	N	N	365	0.04287881	21.23	21.27	0	21.27	6.38
Diesel Tanks	13.54055	Horizontal Tank	Diesel	372,000.00	52.880361	53.33583	0.005188162	N	N	N	365	0.54971493	4.19	4.74	0	4.74	1.42
EMF Tanks	4.4291339	FRT (no floating roof)	Virgin NMP	22,014,620.88	52.880361	53.33583	0.002379151	N	N	N	365	0.03934088	21.21	21.24	0	21.24	6.37
EMF Buffer Tanks	4.4291339	FRT (no floating roof)	Virgin NMP	22,014,620.88	52.880361	53.33583	0.002379151	N	N	N	365	0.03934088	21.21	21.24	0	21.24	6.37
HD Mixer Tanks	5.7086614	FRT (no floating roof)	NMP & Binder	22,014,620.88	52.880361	53.33583	0.035017346	N	N	N	365	1.9388174	345.15	347.09	0	347.09	104.13
NMP Recovery Tanks	10.498688	FRT (no floating roof)	Recovered NMP	14,361,805.08	52.880361	53.33583	0.002379151	N	N	N	365	0.23066553	14.93	15.16	0	15.16	4.55
NMP Storage Tanks	4.4291339	FRT (no floating roof)	Virgin NMP	14,361,805.08	52.880361	53.33583	0.002379151	N	N	N	365	0.03934088	13.91	13.95	0	13.95	4.18
NMP Supply Tanks	8.8582677	FRT (no floating roof)	Virgin NMP	143,905,587.00	52.880361	53.33583	0.002379151	N	N	N	365	0.23998926	138.61	138.85	0	138.85	41.65
LCNT Tanks	4.4291339	FRT (no floating roof)	Virgin NMP	10,113,158.30	52.880361	53.33583	0.002379151	N	N	N	365	0.03934088	6.95	6.97	0	6.97	2.09
Slurry Storage Tank	4.4291339	FRT (no floating roof)	Virgin NMP	22,014,620.88	52.880361	53.33583	0.002379151	N	N	N	365	0.03934088	21.21	21.24	0	21.24	6.37

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Part 70 Significant Source Modification and Significant Permit Modification

Source Description and Location

Source Name:	**StarPlus Energy LLC**
Source Location:	**2724 N. 50 E., Kokomo, Indiana 46901**
County:	**Howard**
SIC Code:	**3691 (Storage Batteries), 2869 (Industrial Organic Chemicals, Not Elsewhere Classified)**
Operation Permit No.:	**T 067-45648-00093**
Operation Permit Issuance Date:	**September 12, 2023**
Significant Source Modification No.:	**067-47602-00093**
Significant Permit Modification No.:	**067-47628-00093**
Permit Reviewer:	**Sidhant Paul**

Source Definition

The following plants are considered in the source determination:

(a) JWA CO., LTD.'s plant located at 1679 East Sparks Road, Kokomo, IN 46901 (067-00096) making chemicals, and

(b) StarPlus Energy LLC's plant located at 2724 N. 50 E., Kokomo, Indiana 46901 (Source ID 067-00093), manufacturing storage batteries.

IDEM's Nonrule Policy Document Air-005 applies to the definition of "major source" in 326 IAC 2-7-1(22). IDEM's Nonrule Policy Document Air-006 provides additional policy guidance to permitting on-site contractors. All of IDEM's nonrule policy documents are available at https://www.in.gov/idem/resources/nonrule-policies/effective-nonrule-policies/ on IDEM's website.

IDEM, OAQ has examined whether these plants are part of the same Part 70 major source. The term "major source" is defined at 326 Indiana Administrative Code 2-7-1(22). The Indiana Administrative Code is available at http://www.in.gov/legislative/iac/iac_title?iact=326 on the Internet. In order for these plants to be considered as a major source under 326 IAC 2-7-1(22)(B) and (C), all three of the following criteria must be met:

(a) The plants must have common ownership and/or control;

(b) The plants must have the same two-digit Standard Industrial Classification (SIC) Code or one must serve as a support facility to the other; and

(c) The plants must be located on the same, contiguous or adjacent properties.

First Criteria - Common Ownership or Control:
The first criteria to be considered is whether these plants are under common ownership or control. NPD Air-005 states:

Common ownership may exist in several forms.
- If a third party has ownership of fifty-one percent (51%) or more in each of two (2) or more entities, common ownership exists.
- If two (2) or more entities share common corporate officers, in whole or in substantial part, who are responsible for the day-to-day operations of the entities, common ownership exists.

- If one entity has fifty-one percent (51%) or greater ownership of another entity, common ownership exists.

The JWA CO., LTD. plant is owned by Jaewon Industries America, LLC. The StarPlus plant is owned by StarPlus Energy LLC, a joint venture between Samsung SDI America and Stellantis. Samsung owns 51% of StarPlus Energy LLC and Stellantis owns 49%. No person has a 51% or greater ownership interest in both the JWA CO., LTD. plant and the StarPlus plant. The StarPlus plant and the JWA CO., LTD. plant do not share common corporate officers, in whole or in substantial part, who are responsible for day-to-day operations. The plants are not under common ownership.

Common Control Test:
Absent common ownership, common control may still exist. NPD Air-005 sets out two independent tests to determine if common control exists when there is no common ownership. Both tests examine the relationship between the entities. If either test is satisfied, common control exists.

a. Two-pronged Test to Determine Common Control:
The first test common control test, the auxiliary activity test, determines whether one plant performs an auxiliary activity which directly serves the purpose of the primary activity and whether the owner or operator of the primary activity has a major role in the day-to-day operations of the auxiliary activity.

1st Prong
An auxiliary activity directly serves the purpose of a primary activity by supplying a necessary raw material to the primary activity or performing an integral part of the production process for the primary activity.

2nd Prong
Day-to-day control of the auxiliary activity by the primary activity may be evidenced by several factors, including:
- Is a majority of the output of the auxiliary activity provided to the primary activity?
- Can the auxiliary activity contract to provide its products/services to a third-party without the consent of the primary activity?
- Can the primary activity assume control of the auxiliary activity under certain circumstances?
- Is the auxiliary activity required to complete periodic reports to the primary activity?

If one or a combination of these questions is answered affirmatively, common control may exist.

The StarPlus plant uses the solvent N-methylpyrrolidone (NMP) in its manufacturing process. The StarPlus plant sends all of its spent NMP to the JWA CO., LTD. plant. This is a minor part of the StarPlus plant's output, as its major output is storage batteries. The JWA CO., LTD. plant recycles spent NMP and makes two products, recycled NMP and conductive slurry. The JWA CO., LTD. plant gets 80% of its spent NMP from the StarPlus plant. The JWA CO., LTD. plant sends 75% of its recycled NMP and all of its conductive slurry to the StarPlus plant. Either plant can make contracts with third parties without the consent of the other plant. Neither plant can assume control of the other plant under any circumstance. Neither plant is required to complete periodic reports to the other plant. The plants meet the first common control test.

b. But/For Test to Determine Common Control:
The second common control test in the nonrule policy is the but/for test. This test focuses on whether the auxiliary activity would exist absent the needs of the primary activity. If all or a majority of the output of the auxiliary activity is consumed by the primary activity the but/for test is satisfied.

The StarPlus plant does not send a majority of its output to the JWA CO., LTD. plant. If the StarPlus plant were to stop providing the JWA CO., LTD plant with spent NMP, the JWA CO., LTD. plant would still recycle spent NMP it receives from other sources. The JWA CO., LTD. plant sends 75% of its recycled NMP and 100% of its conductive slurry, its only outputs, to the StarPlus plant. The plants meet the second common control test.

Common Control Test - Conclusion:
Both common control tests are met. The plants meet the first criteria of the major source definition.

Second Criteria - Common SIC Code or Support Facility:
The second criteria is whether either of the plants have a common two-digit Standard Industrial Classification (SIC) Code or if one plant serves as a support facility for the other plant. The Standard Industrial Classification Manual of 1987 sets out how to determine the proper SIC Code for each type of business. More information about SIC Codes is available at https://www.osha.gov/data/sic-manual on the Internet. The SIC Code is determined by looking at the principal product or activity of each plant.

The StarPlus plant makes storage batteries. It has the two-digit SIC Code 36 for the Major Group of Electronics and Other Electrical Equipment and Components, Except Computer Equipment. The JWA CO., LTD. plant makes chemicals. It has the two-digit SIC Code 28 for the Major Group of Chemicals and Allied Products.

Support Facility Relationship
A plant is a support facility to another plant if it dedicates 50% or more of its output to the other plant. The JWA CO., LTD. plant dedicates more than 50% of its output to the StarPlus plant. The JWA CO., LTD. plant is a support facility. The plants meet the second criteria of the major source definition.

Third Criteria - Same, Contiguous, or Adjacent Properties:
The third and last criteria of the major source definition is whether the plants are on the same, contiguous or adjacent properties. Plants located on properties that share a common property border are contiguous. The plants share a common property border. The plants meet the third criteria of the major source definition.

Source Determination - Final Conclusion Under 326 IAC 2-7-1(22)(B) and (C):
IDEM, OAQ finds that the plants meet all three criteria of the major source definition and therefore the plants are part of the same Part 70 major source.

This determination was initially made under Part 70 Administrative Permit No. T067-47041-00096, issued on February 20, 2024.

Existing Approvals

The source was issued Part 70 Operating Permit No. 067-45648-00093 on September 12, 2023. The source has since received the following approvals:

JWA CO., LTD was issued a Part 70 Administrative Permit No. T067-47041-00096 on February 20, 2024

County Attainment Status

The source is located in Howard County.

Pursuant to amendments to Indiana Code IC 13-17-3-14, effective July 1, 2023, a federal regulation that classifies or amends a designation of attainment, nonattainment, or unclassifiable for any area in Indiana under the federal Clean Air Act is effective and enforceable in Indiana on the effective date of the federal regulation.

Pollutant	Designation
SO_2	Unclassifiable or attainment effective April 9, 2018, for the 2010 primary 1-hour SO_2 standard. Better than national secondary standards effective March 3, 1978.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	Unclassifiable or attainment effective January 16, 2018, for the 2015 8-hour ozone standard.
$PM_{2.5}$	Unclassifiable or attainment effective April 15, 2015, for the 2012 annual $PM_{2.5}$ standard.

Pollutant	Designation
$PM_{2.5}$	Unclassifiable or attainment effective December 13, 2009, for the 2006 24-hour $PM_{2.5}$ standard.
PM_{10}	Unclassifiable effective November 15, 1990.
NO_2	Unclassifiable or attainment effective January 29, 2012, for the 2010 NO_2 standard.
Pb	Unclassifiable or attainment effective December 31, 2011, for the 2008 lead standard.

(a) Ozone Standards
Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Howard County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) $PM_{2.5}$
Howard County has been classified as attainment for $PM_{2.5}$. Therefore, direct $PM_{2.5}$, SO_2, and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(c) Other Criteria Pollutants
Howard County has been classified as attainment or unclassifiable in Indiana for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

StarPlus Energy LLC (the primary source) operates a stationary lithium ion battery manufacturing operation that is not one (1) of the twenty-eight (28) listed source categories under 326 IAC 2-2-1(ff)(1), 326 IAC 2-3-2(g), or 326 IAC 2-7-1(22)(B), and there is no applicable New Source Performance Standard or National Emission Standard for Hazardous Air Pollutants that was in effect on August 7, 1980, fugitive emissions from StarPlus Energy LLC are not counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

The combined source includes JWA CO., LTD. that supports StarPlus Energy LLC.Since JWA CO., LTD. is classified as a chemical process plant, it is considered one (1) of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1), 326 IAC 2-3-2(g), or 326 IAC 2-7-1(22)(B) and based on the EPA guidance for “nesting activities.” Therefore, fugitive emissions from JWA CO., LTD. are counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

The fugitive emissions of hazardous air pollutants (HAP) are counted toward the determination of Part 70 Permit applicability and source status under Section 112 of the Clean Air Act (CAA).

Greenhouse Gas (GHG) Emissions

On June 23, 2014, in the case of *Utility Air Regulatory Group v. EPA*, cause no. 12-1146, (available at http://www.supremecourt.gov/opinions/13pdf/12-1146_4g18.pdf) the United States Supreme Court ruled that the U.S. EPA does not have the authority to treat greenhouse gases (GHGs) as an air pollutant for the purpose of determining operating permit applicability or PSD Major source status. On July 24, 2014, the U.S. EPA issued a memorandum to the Regional Administrators outlining next steps in permitting decisions in light of the Supreme Court’s decision. U.S. EPA’s guidance states that U.S. EPA will no longer require PSD or Title V permits for sources “previously classified as ‘Major’ based solely on greenhouse gas emissions.”

The Indiana Environmental Rules Board adopted the GHG regulations required by U.S. EPA at 326 IAC 2-2-1(zz), pursuant to Ind. Code § 13-14-9-8(h) (Section 8 rulemaking). A rule, or part of a rule, adopted

under Section 8 is automatically invalidated when the corresponding federal rule, or part of the rule, is invalidated. Due to the United States Supreme Court Ruling, IDEM, OAQ cannot consider GHG emissions to determine operating permit applicability or PSD applicability to a source or modification.

Source Status - Existing Source

The table below summarizes the potential to emit of the entire source, prior to the proposed modification, after consideration of all enforceable limits established in the effective permits. If the control equipment has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the integral control device.

	Source-Wide Emissions Prior to Modification (ton/year)									
	PM[1]	**PM_{10}[1]**	**$PM_{2.5}$[1], [2]**	**SO_2**	**NO_X**	**VOC**	**CO**	**Single HAP[3]**		**Total HAPs**
StarPlus Energy LLC (067-00093) Total PTE Excluding Fugitives*	200.7	202.7	202.7	1.2	52.6	179.0	65.0	9.45 (Nickel)	4.95 (Cobalt)	15.47
JWA CO., LTD. (067-00096) Total PTE Excluding Fugitives*	6.83	7.62	7.62	0.58	17.28	16.33	13.28	-	-	0.27
Total PTE of Entire Source	**207.5**	**210.3**	**210.3**	**1.8**	**69.9**	**195.3**	**78.3**	**9.45 (Nickel)**	**4.95 (Cobalt)**	**15.74**
Title V Major Source Thresholds	NA	100	100	100	100	100	100	10		25
PSD Major Source Thresholds	250	250	250	250	250	250	250	--		--

[1]Under the Part 70 Permit program (40 CFR 70), PM_{10} and $PM_{2.5}$, not particulate matter (PM), are each considered as a "regulated air pollutant."

[2]$PM_{2.5}$ listed is direct $PM_{2.5}$.

[3]Single highest source-wide HAP (Nickel, Cobalt)

*Fugitive HAP emissions are always included in the source-wide emissions.

(a) This existing source is not a major stationary source, under PSD (326 IAC 2-2), because no PSD regulated pollutant is emitted at a rate of two hundred fifty (250) tons per year or more and it is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1).

(b) This existing source is not a major source of HAP, as defined in 40 CFR 63.2, because HAP emissions are less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs.

(c) The emissions for StarPlus Energy LLC (067-00093) are based on the TSD of TV NSC No. 067-45648-00093, issued on September 12, 2023.

(d) The emissions for JWA CO., LTD. (067-00096) are based on the TSD of Part 70 Administrative Permit No. T067-47041-00096, issued on February 20, 2024.

Description of Proposed Modification

The Office of Air Quality (OAQ) has reviewed an application, submitted by Starplus Energy, LLC on March 4, 2024, relating to modifying the existing facilities material throughputs, revising stack ID's and adding additional cooling towers. The proposal includes updated unit descriptions for existing units, along with removal of certain units. In addition to the above the application also included a proposal to expand operations at the existing facility with the addition of a second plant functionally identical to the first plant.

The following is a list of the new and modified emission units and pollution control device(s) relating to plant 1:

Plant1

(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 1-4	1,057	105	918,079	2023*	Bag filter CBF15	01-PEF-03-05
Four (4) HD Mixer Tanks	HD 1-4	634			2023*	Bag filter CBF2	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 1-2	792			2023*	Bag filter CBF8	01-PEF-03-05
One (1) Binder Booth	Binder booth 1	528			2023*	Bag filter CBF16	01-PEF-03-05
Four (4) Cathode Silos	Cathode silo 1-4	1,057			2023*	Bag filter CBF7	01-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 1-4	528			2023*	Bag filter CBF7	01-PEF-03-05
Two (2) Binder Mixers tanks	Binder Mixer 1-2	528			2023*	Bag filter CBF1	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 1-4	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Emf Buffer Tank	EMFBT 1-4	528			2023*		
Seven (7) Storage Tanks	ST 1-7	528			2023*		
One (1) Coater Buffer Tank	CBT 1	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 5-7	1057	**105**	**918,079**	2023*	Bag filter CBF17	01-PEF-03-05
Three (3) HD Mixer Tanks	HD 5-7	634			2023*	Bag filter CBF3	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 3-4	792			2023*	Bag filter CBF10	01-PEF-03-05
One (1) Binder Booth	Binder Booth 2	528			2023*	Bag filter CBF18	01-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 5-7	1057			2023*	Bag filter CBF9	01-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 5-7	528			2023*	Bag filter CBF9	01-PEF-03-05
Two (2) Binder Mixers	Binder Mixer 3-4	528			2023*	Bag filter CBF1	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 5-8	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Three (3) Emf Buffer Tank	EMFBT 5-7	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	
Seven (7) Storage Tanks	ST 8-14	528			2023*		
One (1) Coater Buffer Tank	CBT 2	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 8-11	1057	**105**	**918,079**	2023*	Bag filter CBF19	01-PEF-03-05
Four (4) HD Mixer Tanks	HD 8-11	634			2023*	Bag filter CBF5	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 5-6	792			2023*	Bag filter CBF12	01-PEF-03-05

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
One (1) Binder Booth	Binder booth 3	528			2023*	Bag filter CBF20	01-PEF-03-05
Four (4) Cathode Silos	Cathode silo 8-11	1057			2023*	Bag filter CBF11	01-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 8-11	528			2023*	Bag filter CBF11	01-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 5-6	528			2023*	Bag filter CBF4	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 9-12	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Emf Buffer Tank	EMFBT 8-11	528			2023*		
Seven (7) Storage Tanks	ST 15-21	528			2023*		
One (1) Coater Buffer Tank	CBT 3	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks**
Three (3) Cathode Inlet Tanks	Cathode Inlet 12-14	1057	105	918,079	2023*	Bag filter CBF21	01-PEF-03-05
Three (3) HD Mixer Tanks	HD 12-14	634			2023*	Bag filter CBF6	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 7-8	792			2023*	Bag filter CBF14	01-PEF-03-05
One (1) Binder Booth	Binder Booth 4	528			2023*	Bag filter CBF22	01-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 12-14	1057			2023*	Bag filter CBF13	01-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 12-14	528			2023*	Bag filter CBF13	01-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 7-8	528			2023*	Bag filter CBF4	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 13-16	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Three (3) Emf Buffer Tank	EMFBT 12-14	528			2023*		
Seven (7) Storage Tanks	ST 22-28	528			2023*		
One (1) Coater Buffer Tank	CBT 4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby), including::

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as NMPST 1 and NMPST 2; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 3 and NMPST 4.

Under 40 CFR 63, Subpart CCCCCCC, the NMP Storage Tanks associated with the cathode raw material handling and mixing line is considered an affected source.

(f) One (1) Anode raw material handling and mixing line, identified as ALine1, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stack
Three (3) PD Mixers	PDM 1-3	608	125	1,091,590	2023*	Bag filter ABF2	01-PEF-01-02
Three (3) PD Mixers	PDM 4-6	608			2023*	Bag filter ABF3	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 1-3	528			2023*	Bag filter ABF1	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 1	792			2023*	Bag filter ABF20	01-PEF-01-02
One (1) CMC Booth	CMC Booth 1	792			2023*	Bag filter ABF20	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 1-2	792			2023*	Bag filter ABF12	01-PEF-01-02
One (1) CMC Silo	CMC Silo 1	792			2023*	Bag filter ABF 12	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 1-4	1057			2023*	Bag filter ABF19	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 1-4	1057			2023*	Bag filter ABF11	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 1-6	528			2023*	Bag filter ABF11	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 1-6	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 1	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 1-12	528			2023*		
Two (2) Coater Buffer Tanks	CBT 1-2	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(g) One (1) Anode raw material handling and mixing line, identified as ALine2, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stack***
Three (3) PD Mixers	PDM 7-9	608	125	1,091,590	2023*	Bag filter ABF4	01-PEF-01-02
Three (3) PD Mixers	PDM 10-12	608			2023*	Bag filter ABF5	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 4-6	528			2023*	Bag filter ABF1	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 2	792			2023*	Bag filter ABF22	01-PEF-01-02
One (1) CMC Booth	CMC Booth 2	792			2023*	Bag filter ABF22	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 3-4	792			2023*	Bag filter ABF14	01-PEF-01-02
One (1) CMC Silo	CMC Silo 2	792			2023*	Bag filter ABF 14	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 5-8	1057			2023*	Bag filter ABF21	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 5-8	1057			2023*	Bag filter ABF13	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 7-12	528			2023*	Bag filter ABF13	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 7-12	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 2	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 13-24	528			2023*		
Two (2) Coater Buffer Tanks	CBT 3-4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(h) One (1) Anode raw material handling and mixing line, identified as ALine 3, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 13-15	608	125	1,091,590	2023*	Bag filter ABF7	01-PEF-01-02
Three (3) PD Mixers	PDM 16-18	608			2023*	Bag filter ABF8	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 7-9	528			2023*	Bag filter ABF6	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 3	792			2023*	Bag filter ABF24	01-PEF-01-02
One (1) CMC Booth	CMC Booth 3	792			2023*	Bag filter ABF24	01-PEF-01-02

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Two (2) Anode Conductive Powder Silos	ACPS 5-6	792			2023*	Bag filter ABF16	01-PEF-01-02
One (1) CMC Silo	CMC Silo 3	792			2023*	Bag filter ABF16	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 9-12	1057			2023*	Bag filter ABF23	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 9-12	1057			2023*	Bag filter ABF15	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 13-18	528			2023*	Bag filter ABF15	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 13-18	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 3	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 25-36	528			2023*		
Two (2) Coater Buffer Tanks	CBT 5-6	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(i) One (1) Anode raw material handling and mixing line, identified as ALine 4, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 19-21	608	125	1,091,590	2023*	Bag filter ABF9	01-PEF-01-02
Three (3) PD Mixers	PDM 22-24	608			2023*	Bag filter ABF10	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 10-12	528			2023*	Bag filter ABF6	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 4	608			2023*	Bag filter ABF26	01-PEF-01-02
One (1) CMC Booth	CMC Booth 4	608			2023*	Bag filter ABF26	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 7-8	528			2023*	Bag filter ABF18	01-PEF-01-02
One (1) CMC Silo	CMC Silo 4	608			2023*	Bag filter ABF 18	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 13-16	608			2023*	Bag filter ABF25	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 13-16	528			2023*	Bag filter ABF17	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 19-24	528			2023*	Bag filter ABF17	01-PEF-01-02

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Six (6) CMC Storage Tanks	CMCST 19-24	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 4	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 37-48	528			2023*		
Two (2) Coater Buffer Tanks	CBT 7-8	528			2023*		

* Year approved for construction
** Per individual unit
*** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02

(j) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat1, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-01, exhausting to stack SR-01.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat2, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-02, exhausting to stack SR-06.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat3, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-03, exhausting to stack SR-03.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat4, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-04, exhausting to stack SR-04.

(k) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat1, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat2, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat3, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat4, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(l) Anode slitting process, consisting of the following:

(1) One (1) Anode slitter, identified as AS1, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF1-ASBF4), and exhausting to stack (01-DCEF-1).

(2) One (1) Anode slitter, identified as AS2, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF5-ASBF8), and exhausting to stack (01-DCEF-1).

(3) One (1) Anode slitter, identified as AS3, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF9-ASBF12), and exhausting to stack (01-DCEF-1).

(4) One (1) Anode slitter, identified as AS4, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF13-ASBF16), and exhausting to stack (01-DCEF-1).

(m) Cathode slitting process, consisting of the following:

(1) One (1) Cathode slitter, identified as CS1, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF1-CSBF4), and exhausting to stack (01-DCEF-2).

(2) One (1) Cathode slitter, identified as CS2, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF5-CSBF8), and exhausting to stack (01-DCEF-2).

(3) One (1) Cathode slitter, identified as CS3, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF9-CSBF12), and exhausting to stack (01-DCEF-2).

(4) One (1) Cathode slitter, identified as CS4, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF13-CSBF16), and exhausting to stack (01-DCEF-2).

(n) One (1) Assembly process, consisting of the following:

(1) Four (4) Stacking Lines, consisting of the following:

Line 1

(A) Thirty-two (32) stackers, identified as S1_1 to S1_32, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S1_BF1 to S1_BF32) respectively, exhausting to stack (01-DCEF-3).

Line 2

(B) Thirty-two (32) stackers, identified as S2_1 to S2_32, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S2_BF1 to S2_BF32) respectively, exhausting to stack (01-DCEF-4).

Line 3

(C) Twenty-five (25) stackers, identified as S3_1 to S3_25, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S3_BF1 to S3_BF25) respectively, exhausting to stack (01-DCEF-5).

Line 4

(D) Twenty-five (25) stackers, identified as S4_1 to S4_25, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S4_BF1 to S4_BF25) respectively, exhausting to stack (01-DCEF-6).

(2) Four (4) LPW lines, consisting of the following:

Line 1

(A) Two (2) LPW welding, identified as LPW1-1 to LPW1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF1 to LPWBF2) respectively, exhausting to stack (01-DCEF-7)

Line 2

(B) Two (2) LPW welding, identified as LPW2-1 to LPW2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF3 to LPWBF4) respectively, exhausting to stack (01-DCEF-7)

Line 3

(C) Two (2) LPW welding, identified as LPW3-1 to LPW3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF5 to LPWBF6) respectively, exhausting to stack (01-DCEF-7)

Line 4

(D) Two (2) LPW welding, identified as LPW4-1 to LPW4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF7 to LPWBF8) respectively, exhausting to stack (01-DCEF-7)

(3) Four (4) CanCap Welding lines, consisting of the following:

Line 1

(A) Two (2) CanCap welding, identified as CanCap1-1 to CANCAP1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF1 to CANCAPBF2) respectively, exhausting to stack (01-DCEF-8).

Line 2

(B) Two (2) CanCap welding, identified as CANCAP2-1 to CANCAP2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF3 to CANCAPBF4) respectively, exhausting to stack (01-DCEF-8).

Line 3

(C) Two (2) CanCap welding, identified as CANCAP3-1 to CANCAP3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF5 to CANCAPBF6) respectively, exhausting to stack (01-DCEF-8).

Line 4

(D) Two (2) CanCap welding, identified as CANCAP4-1 to CANCAP4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF7 to CANCAPBF8) respectively, exhausting to stack (01-DCEF-8).

(4) Four (4) electrolyte filling processes, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, approved for construction in 2023 and approved for modification in 2024, using Activated Carbon Towers (CAT-02a, CAT-02b, CAT-02c, CAT-02d, & CAT-02e Standby) for VOC/HAP control for all four lines, exhausting to stack (S-2a, S-2b, S-2c, S-2d, and S-2e Standby), consisting of the following:

Line 1

(A) Eight (8) electrolyte filling machines, identified as EFM1-EFM8, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 2

(B) Eight (8) electrolyte filling machines, identified as EFM9-EFM16, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 3

(B) Eight (8) electrolyte filling machines identified as EFM17-EFM24, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 4

(C) Eight (8) electrolyte filling machines, identified as EFM25-EFM32, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

(o) One (1) formation process, identified as Formation, approved in 2023 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(1) One (1) taping process, with a combined maximum process capacity of 3,588 cells per hour, total, consisting of the following:

(A) One (1) taping machine, identified as TM-1, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF1-TMBF4), exhausting through general exhaust stack 02-EF-301-302.

(B) One (1) taping machine, identified as TM-2, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF5-TMBF8), exhausting through general exhaust stack 02-EF-301-302.

(C) One (1) taping machine, identified as TM-3, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF9-TMBF12), exhausting through general exhaust stack 02-EF-301-302.

(D) One (1) taping machine, identified as TM-4, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF13-TMBF16), exhausting through general exhaust stack 02-EF-301-302.

(E) One (1) taping machine, identified as TM-5, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF17-TMBF20), exhausting through general exhaust stack 02-EF-301-302.

(F) One (1) taping machine, identified as TM-6, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF21-TMBF24), exhausting through general exhaust stack 02-EF-301-302.

(G) One (1) taping machine, identified as TM-7, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF25-TMBF28), exhausting through general exhaust stack 02-EF-301-302.

(H) One (1) taping machine, identified as TM-8, approved in 2023 for construction and approved in 2024 for modification, and controlled by bag filters (TMBF29-TMBF32), exhausting through general exhaust stack 02-EF-301-302.

(2) Four (4) SealPin Welding lines, consisting of the following:

Line 1

(A) Two (2) seal pin welding, identified as SPW1-1 to SPW1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (SPWBF1), exhausting through general exhaust stack 02-301-302.

Line 2

(B) Two (2) seal pin welding, identified as SPW2-1 to SPW2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF2) respectively, exhausting through general exhaust stack 02-EF-301-302.

Line 3

(C) Two (2) seal pin welding, identified as SPW3-1 to SPW3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF3) respectively, exhausting through general exhaust stack 02-EF-301-302.

Line 4

(D) Two (2) seal pin welding, identified as SPW4-1 to SPW4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF4) respectively, exhausting to through general exhaust stack 02-EF-301-302.

(3) Four (4) HVC Front Side Moving Device, identified as HVC1-HVC4, approved in 2023 for construction and approved in 2024 for modification, with a combined maximum capacity of 3,588 cells/hr, and Activated Carbon Tower (CAT-03a, CAT-03b & CAT-03c /Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(p) One (1) module process, identified as Module, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following

Line 1

(1) One (1) frame side welding, identified as FSW1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897cells/hr, total, and controlled by a bag filter (MBF1), exhausting through general exhaust stack 02-EF-301-302.

(2) One (1) busbar welding, identified as BW1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and

controlled by a bag filter (MBF2), exhausting through general exhaust stack 02-EF-301-302.

(3) One (1) side dispenser, identified as SD1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA1-PSA2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(6) Two (2) curing stations, identified as CUS1-CUS2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(7) One (1) Frame end welding, identified as FEW1, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF9), exhausting through general exhaust stack 02-EF-301-302.

Line 2

(8) One (1) frame side welding, identified as FSW2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF3), exhausting through general exhaust stack 02-EF-301-302.

(9) One (1) busbar welding, identified as BW2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF4), exhausting through general exhaust stack 02-EF-301-302.

(10) One (1) side dispenser, identified as SD2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(11) One (1) HBB dispenser, identified as HBB2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(12) Two (2) PSA dispensers, identified as PSA3-PSA4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(13) Two (2) curing stations, identified as CUS3-CUS4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(14) One (1) Frame end welding, identified as FEW2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF10), exhausting through general exhaust stack 02-EF-301-302.

Line 3

(15) One (1) frame side welding, identified as FSW3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF5), exhausting through general exhaust stack 02-EF-301-302.

(16) One (1) busbar welding, identified as BW3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF6), exhausting through general exhaust stack 02-EF-301-302.

(17) One (1) side dispenser, identified as SD3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(18) One (1) HBB dispenser, identified as HBB3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(19) Two (2) PSA dispensers, identified as PSA5-PSA6, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(20) Two (2) curing stations, identified as CUS5-CUS6, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(21) One (1) Frame end welding, identified as FEW3, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF11), exhausting through general exhaust stack 02-EF-301-302.

Line 4

(22) One (1) frame side welding, identified as FSW4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF7), exhausting through general exhaust stack 02-EF-301-302.

(23) One (1) busbar welding, identified as BW4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF8), exhausting through general exhaust stack 02-EF-301-302.

(24) One (1) side dispenser, identified as SD4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(25) One (1) HBB dispenser, identified as HBB4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(26) Two (2) PSA dispensers, identified as PSA7-PSA8, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(27) Two (2) curing stations, identified as CUS7-CUS8, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(28) One (1) Frame end welding, identified as FEW4, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF12), exhausting through general exhaust stack 02-EF-301-302.

(q) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

This stationary source also includes the following modified insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

Plant 1:
....

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating1 to W-Heating3, approved in 2023 for construction, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating01 through S-Heating-60, approved in 2023 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

....
(e) Twenty-six (26) cooling towers, identified as CWT01-CWT26, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 4,615 gal/min each, using no control, and exhausting to the atmosphere.

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21):

Plant 1:
...
(b) One (1) used battery storage room, identified as USB1, approved in 2023 for construction, used for discharging used lithium-ion batteries, with a nominal capacity of 4.17 cells/hr, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5).

(g) One (1) Packing process, identified as Packing1, approved in 2024 for construction, exhausting indoors.

The following is a list of the new emission units and pollution control device(s) relating to the plant 2:

Plant 2:

(a) One (1) cathode raw material handling and mixing line, identified as Cline 5, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 15-18	1,057	105	918,079	2024*	Bag filter CBF42	02-PEF-03-05
Four (4) HD Mixer Tanks	HD 15-18	634			2024*	Bag filter CBF29	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 9-10	792			2024*	Bag filter CBF35	02-PEF-03-05

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
One (1) Binder Booth	Binder booth 5	528			2024*	Bag filter CBF40	02-PEF-03-05
Four (4) Cathode Silos	Cathode silo 15-18	1,057			2024*	Bag filter CBF34	02-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 15-18	528			2024*	Bag filter CBF34	02-PEF-03-05
Two (2) Binder Mixers tanks	Binder Mixer 9-10	528			2024*	Bag filter CBF28	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 15-18	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Emf Buffer Tank	EMFBT 15-18	528			2024*		
Seven (7) Storage Tanks	ST 29-35	528			2024*		
One (1) Coater Buffer Tank	CBT 5	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as Cline 6, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 19-21	1057	105	918,079	2024*	Bag filter CBF44	02-PEF-03-05
Three (3) HD Mixer Tanks	HD 19-21	634			2024*	Bag filter CBF30	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 11-12	792			2024*	Bag filter CBF37	02-PEF-03-05
One (1) Binder Booth	Binder Booth 6	528			2024*	Bag filter CBF45	02-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 19-21	1057			2024*	Bag filter CBF36	02-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 19-21	528			2024*	Bag filter CBF36	02-PEF-03-05
Two (2) Binder Mixers	Binder Mixer 11-12	528			2024*	Bag filter CBF28	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 21-24	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby CAT-09a, CAT-09b	S-9a, S-9b, and S-9c Standby
Three (3) Emf Buffer Tank	EMFBT 19-21	528			2024*		
Seven (7) Storage Tanks	ST 36-42	528			2024*		

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
One (1) Coater Buffer Tank	CBT 6	528			2024*	and CAT-09c Standby	

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 7, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 22-25	1057	105	918,079	2024*	Bag filter CBF46	02-PEF-03-05
Four (4) HD Mixer Tanks	HD 22-25	634			2024*	Bag filter CBF32	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 13-14	792			2024*	Bag filter CBF39	02-PEF-03-05
One (1) Binder Booth	Binder booth 7	528			2024*	Bag filter CBF47	02-PEF-03-05
Four (4) Cathode Silos	Cathode silo 22-25	1057			2024*	Bag filter CBF38	02-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 22-25	528			2024*	Bag filter CBF38	02-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 13-14	528			2024*	Bag filter CBF31	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 25-28	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Emf Buffer Tank	EMFBT 22-25	528			2024*		
Seven (7) Storage Tanks	ST 43-49	528			2024*		
One (1) Coater Buffer Tank	CBT 7	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 8, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 26-28	1057	105	918,079	2024*	Bag filter CBF48	02-PEF-03-05
Three (3) HD Mixer Tanks	HD 26-28	634			2024*	Bag filter CBF33	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 15-16	792			2024*	Bag filter CBF41	02-PEF-03-05
One (1) Binder Booth	Binder Booth 8	528			2024*	Bag filter CBF49	02-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 26-28	1057			2024*	Bag filter CBF43	02-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 26-28	528			2024*	Bag filter CBF43	02-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 15-16	528			2024*	Bag filter CBF31	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 29-32	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Three (3) Emf Buffer Tank	EMFBT 26-28	528			2024*		
Seven (7) Storage Tanks	ST 50-56	528			2024*		
One (1) Coater Buffer Tank	CBT 8	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction, using Activated Carbon Towers (CAT-10a, CAT-10b, CAT-10c, CAT-10d, & CAT-10e Standby) for VOC/HAP control, exhausting to stack (S-10a, S-10b, S-10c, S-10d, and 10-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as Tanks NMPST5 and NMPST6; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST7 and NMPST 8.

Under 40 CFR 63, Subpart CCCCCCC, the NMP Storage Tanks associated with the cathode raw material handling and mixing line is considered an affected source.

(f) One (1) Anode raw material handling and mixing line, identified as Aline5, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 25-27	608			2024*	Bag filter ABF29	02-PEF-01-02

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 28-30	608	125	1,091,590	2024*	Bag filter ABF30	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 13-15	528			2024*	Bag filter ABF28	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 5	792			2024*	Bag filter ABF47	02-PEF-01-02
One (1) CMC Booth	CMC Booth 5	792			2024*	Bag filter ABF47	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 9-10	792			2024*	Bag filter ABF39	02-PEF-01-02
One (1) CMC Silo	CMC Silo 5	792			2024*	Bag filter ABF39	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 17-20	1057			2024*	Bag filter ABF46	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 17-20	1057			2024*	Bag filter ABF38	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 25-30	528			2024*	Bag filter ABF38	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 25-30	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 5	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 49-60	528			2024*		
Two (2) Coater Buffer Tanks	CBT 9-10	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(g) One (1) Anode raw material handling and mixing line, identified as Aline6, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 31-33	608	125	1,091,590	2024*	Bag filter ABF31	02-PEF-01-02
Three (3) PD Mixers	PDM 34-36	608			2024*	Bag filter ABF32	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 16-18	528			2024*	Bag filter ABF28	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 6	792			2024*	Bag filter ABF49	02-PEF-01-02
One (1) CMC Booth	CMC Booth 6	792			2024*	Bag filter ABF49	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 11-12	792			2024*	Bag filter ABF41	02-PEF-01-02
One (1) CMC Silo	CMC Silo 6	792			2024*	Bag filter ABF 41	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 21-24	1057			2024*	Bag filter ABF48	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 21-24	1057			2024*	Bag filter ABF40	02-PEF-01-02

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Six (6) Anode Mixer Hoppers	AMH 31-36	528			2024*	Bag filter ABF40	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 31-36	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 6	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 61-72	528			2024*		
Two (2) Coater Buffer Tanks	CBT 11-12	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(h) One (1) Anode raw material handling and mixing line, identified as ALine 7, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 37-39	608	125	1,091,590	2024*	Bag filter ABF34	02-PEF-01-02
Three (3) PD Mixers	PDM 40-42	608			2024*	Bag filter ABF35	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 19-21	528			2024*	Bag filter ABF33	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 7	792			2024*	Bag filter ABF51	02-PEF-01-02
One (1) CMC Booth	CMC Booth 7	792			2024*	Bag filter ABF51	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 13-14	792			2024*	Bag filter ABF43	02-PEF-01-02
One (1) CMC Silo	CMC Silo 7	792			2024*	Bag filter ABF43	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 25-28	1057			2024*	Bag filter ABF50	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 25-28	1057			2024*	Bag filter ABF42	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 37-42	528			2024*	Bag filter ABF42	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 37-42	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 7	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 73-84	528			2024*		
Two (2) Coater Buffer Tanks	CBT 13-14	528			2024*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(l) One (1) Anode raw material handling and mixing line, identified as ALine 8, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 43-45	608	125	1,091,590	2024*	Bag filter ABF36	02-PEF-01-02
Three (3) PD Mixers	PDM 46-48	608			2024*	Bag filter ABF37	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 22-24	528			2024*	Bag filter ABF33	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 8	608			2024*	Bag filter ABF53	02-PEF-01-02
One (1) CMC Booth	CMC Booth 8	608			2024*	Bag filter ABF53	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 15-16	528			2024*	Bag filter ABF45	02-PEF-01-02
One (1) CMC Silo	CMC Silo 8	608			2024*	Bag filter ABF 45	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 29-32	608			2024*	Bag filter ABF52	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 29-32	528			2024*	Bag filter ABF44	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 43-48	528			2024*	Bag filter ABF44	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 43-48	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 8	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 85-96	528			2024*		
Two (2) Coater Buffer Tanks	CBT 15-16	528			2024*		

* Year approved for construction
** Per individual unit
*** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02

(j) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat5, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-05, exhausting to stack SR-05.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat6, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-06, exhausting to stack SR-06.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat7, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-07, exhausting to stack SR-07.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat8, approved in 2024 for construction, with maximum capacity of 387,500 square

inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-08, exhausting to stack SR-08.

(k) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat5, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat6, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat7, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat8, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(l) Anode slitting process, consisting of the following:

(1) One (1) Anode slitter, identified as AS5, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF17-ASBF20), and exhausting to stack (02-DCEF-1).

(2) One (1) Anode slitter, identified as AS6, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF21-ASBF24), and exhausting to stack (02-DCEF-1).

(3) One (1) Anode slitter, identified as AS7, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF25-ASBF28), and exhausting to stack (02-DCEF-1).

(4) One (1) Anode slitter, identified as AS8, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF29-ASBF32), and exhausting to stack (02-DCEF-1).

(m) Cathode slitting process, consisting of the following:

(1) One (1) Cathode slitter, identified as CS5, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF17-CSBF20), and exhausting to stack (02-DCEF-2).

(2) One (1) Cathode slitter, identified as CS6, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF21-CSBF24), and exhausting to stack (02-DCEF-2).

(3) One (1) Cathode slitter, identified as CS7, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF25-CSBF28), and exhausting to stack (02-DCEF-2).

(4) One (1) Cathode slitter, identified as CS8, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF29-CSBF32), and exhausting to stack (02-DCEF-2).

(n) One (1) Assembly process, consisting of the following:

(1) Four (4) Stacking Lines, consisting of the following:

Line 5

(A) Thirty-two (32) stackers, identified as S5_1 to S5_32, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S5_BF1 to S5_BF32) respectively, exhausting to stack (02-DCEF-3).

Line 6

(B) Thirty-two (32) stackers, identified as S6_1 to S6_32, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S4_BF1 to S4_BF32) respectively, exhausting to stack (02-DCEF-4).

Line 7

(C) Twenty-five (25) stackers, identified as S7_1 to S7_25, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S7_BF1 to S7_BF25) respectively, exhausting to stack (02-DCEF-5).

Line 8

(D) Twenty-five (25) stackers, identified as S8_1 to S8_25, approved in 2023 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S8_BF1 to S8_BF25) respectively, exhausting to stack (02-DCEF-6).

(2) Four (4) LPW lines, consisting of the following:

Line 5

(A) Two (2) LPW welding, identified as LPW5-1 to LPW5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF9 to LPWBF10) respectively, exhausting to stack (02-DCEF-7).

Line 6

(B) Two (2) LPW welding, identified as LPW6-1 to LPW6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF11 to LPWBF12) respectively, exhausting to stack (02-DCEF-7).

Line 7

(C) Two (2) LPW welding, identified as LPW7-1 to LPW7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF13 to LPWBF14) respectively, exhausting to stack (02-DCEF-7).

Line 8

(D) Two (2) LPW welding, identified as LPW8-1 to LPW8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF15 to LPWBF16) respectively, exhausting to stack (02-DCEF-7).

(3) Four (4) CanCap Welding lines, consisting of the following:

Line 5

(A) Two (2) CanCap welding, identified as CanCap5-1 to CANCAP5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each

controlled by a bag filter (CANCAPBF9 to CANCAPBF10) respectively, exhausting to stack (02-DCEF-8).

Line 6
(B) Two (2) CanCap welding, identified as CANCAP6-1 to CANCAP6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF11 to CANCAPBF12) respectively, exhausting to stack (02-DCEF-8).

Line 7
(C) Two (2) CanCap welding, identified as CANCAP7-1 to CANCAP7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF13 to CANCAPBF14) respectively, exhausting to stack (02-DCEF-8).

Line 8
(D) Two (2) CanCap welding, identified as CANCAP8-1 to CANCAP8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF15 to CANCAPBF16) respectively, exhausting to stack (02-DCEF-8).

(4) Four (4) electrolyte filling processes, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, approved for construction in 2024, using Activated Carbon Towers (CAT-04a, CAT-04, CAT-04c, CAT-04d, & CAT-04e Standby) for VOC/HAP control, exhausting to stack (S-4a, S-4b, S-4c, S-4d, and S-4e Standby), consisting of the following:

Line 5
(A) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 6
(B) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 7
(C) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 8
(D) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

(o) One (1) formation process, identified as Formation, approved in 2024 for construction, using Activated Carbon Towers (CAT-11a, CAT-11b, CAT-11c, CAT-11d, & CAT-11e Standby) for VOC/HAP control, exhausting to stack (S-11a, S-11b, S-11c, S-11d, and S-11e Standby).

(1) One (1) taping process, with a combined maximum process capacity of 3,588 cells per hour, total, consisting of the following:

(A) One (1) taping machine, identified as TM-9, approved in 2024 for construction, controlled by bag filters (TMBF33-TMBF36), exhausting through general exhaust stack 03-EF-301-302.

(B) One (1) taping machine, identified as TM-10, approved in 2024 for construction, controlled by bag filters (TMBF37-TMBF40), exhausting through general exhaust stack 03-EF-301-302.

(C) One (1) taping machine, identified as TM-11, approved in 2023 for construction, controlled by bag filters (TMBF41-TMBF44), exhausting through general exhaust stack 03-EF-301-302.

(D) One (1) taping machine, identified as TM-12, approved in 2024 for construction, controlled by bag filters (TMBF45-TMBF48), exhausting through general exhaust stack 03-EF-301-302.

(E) One (1) taping machine, identified as TM-13, approved in 2024 for construction, controlled by bag filters (TMBF49-TMBF52), exhausting through general exhaust stack 03-EF-301-302.

(F) One (1) taping machine, identified as TM-14, approved in 2024 for construction, controlled by bag filters (TMBF53-TMBF56), exhausting through general exhaust stack 03-EF-301-302.

(G) One (1) taping machine, identified as TM-15, approved in 2024 for construction, controlled by bag filters (TMBF57-TMBF60), exhausting through general exhaust stack 03-EF-301-302.

(H) One (1) taping machine, identified as TM-16, approved in 2024 for construction, controlled by bag filters (TMBF61-TMBF64), exhausting through general exhaust stack 03-EF-301-302.

(2) Four (4) SealPin Welding lines, consisting of the following

Line 5
(A) Two (2) seal pin welding, identified as SPW5-1 to SPW5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (SPWBF5), exhausting through general exhaust stack 03-EF-301-302.

Line 6
(B) Two (2) seal pin welding, identified as SPW6-1 to SPW6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF6) respectively, exhausting through general exhaust stack 03-EF-301-302.

Line 7
(C) Two (2) seal pin welding, identified as SPW7-1 to SPW7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF7) respectively, exhausting through general exhaust stack 03-EF-301-302.

Line 8
(D) Two (2) seal pin welding, identified as SPW8-1 to SPW8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF8) respectively, exhausting to through general exhaust stack 03-EF-301-302.

(3) Four (4) HVC Front Side Moving Device, identified as HVC5-HVC8, approved in 2024 for construction, with a combined maximum capacity of 3,588 cells/hr, and Activated Carbon Towers (CAT-11a, CAT-11b, CAT-11c, CAT-11d, & CAT-11e Standby) for VOC/HAP control, exhausting to stack (S-11a, S-11b, S-11c, S-11d, and S-11e Standby.

(p) One (1) module process, identified as Module, approved in 2024 for construction, and consisting of the following:

Line 5

(1) One (1) frame side welding, identified as FSW5, approved in 2024 for construction, with a maximum capacity of 897cells/hr, total, and controlled by a bag filter (MBF13), exhausting through general exhaust stack 03-EF-301-302.

(2) One (1) busbar welding, identified as BW5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MB14), exhausting through general exhaust stack 03-EF-301-302.

(3) One (1) side dispenser, identified as SD5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA9-PSA10, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(6) Two (2) curing stations, identified as CS9-CS10, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(7) One (1) Frame end welding, identified as FEW5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF21), exhausting through general exhaust stack 03-EF-301-302.

Line 6

(8) One (1) frame side welding, identified as FSW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF15), exhausting through general exhaust stack 03-EF-301-302.

(9) One (1) busbar welding, identified as BW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF16), exhausting through general exhaust stack 03-EF-301-302.

(10) One (1) side dispenser, identified as SD6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(11) One (1) HBB dispenser, identified as HBB6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(12) Two (2) PSA dispensers, identified as PSA11-PSA12, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(13) Two (2) curing stations, identified as CS11-CS12, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(14) One (1) Frame end welding, identified as FEW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF22), exhausting through general exhaust stack 03-EF-301-302.

Line 7

(15) One (1) frame side welding, identified as FSW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF17), exhausting through general exhaust stack 03-EF-301-302.

(16) One (1) busbar welding, identified as BW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF18), exhausting through general exhaust stack 03-EF-301-302.

(17) One (1) side dispenser, identified as SD7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(18) One (1) HBB dispenser, identified as HBB7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(19) Two (2) PSA dispensers, identified as PSA13-PSA14, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(20) Two (2) curing stations, identified as CS13-CS14, approved in 20243 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(21) One (1) Frame end welding, identified as FEW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF23), exhausting through general exhaust stack 03-EF-301-302.

Line 8

(22) One (1) frame side welding, identified as FSW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF19), exhausting through general exhaust stack 03-EF-301-302.

(23) One (1) busbar welding, identified as BW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF20), exhausting through general exhaust stack 03-EF-301-302.

(24) One (1) side dispenser, identified as SD8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(25) One (1) HBB dispenser, identified as HBB8, approved in 2023 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(26) Two (2) PSA dispensers, identified as PSA15-PSA16, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(27) Two (2) curing stations, identified as CS13-CS14, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(28) One (1) Frame end welding, identified as FEW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF24), exhausting through general exhaust stack 03-EF-301-302.

(q) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction with a maximum heat input capacity of 12.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

Plant 2

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating4 to W-Heating6, 2024 for construction, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating61 through S-Heating-120, approved in 2024 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Four (4) cooling towers, identified as CWT27-CWT30, approved in 2024 for construction, with a maximum capacity of 5,500 gal/min each, using no control, and exhausting to the atmosphere.

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21): Plant 2:

(a) One (1) electrolyte storage tank, identified as EST-2, approved in 2024 for construction, with a nominal capacity of 528 gallons and annual throughput of 1,569 gal/hr, using Activated Carbon Tower (CAT-06) as control, and exhausting to stack (S-6).

(b) One (1) used battery storage room, identified as USB-2, approved in 2024 for construction, used for discharging used lithium-ion batteries, with a maximum capacity of 4.87 cells/hr, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5)

(c) One (1) innovation process for research and development, identified as R&D, uncontrolled, and exhausting indoors.

(d) One (1) diesel storage tank, identified as DST-2, approved in 2024 for construction, with a maximum capacity of 500 gallons, using no control, and exhausting to the atmosphere.

(e) One (1) Packing process, identified as Packing2, approved in 2024 for construction, exhausting indoors.

As part of this permitting action, the following emission units are being removed from the permit:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Seven (7) LCNT Tanks	LCNT1-7	634	105	918,079	2023*	CAT-01a, CAT-01b	

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
One (1) NMP Supply Tank	NMPST1	5,283			2023*	and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Emf Tanks	EMFT 1-4	528			2023*		

(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Seven (7) LCNT Tanks	LCNT8-14	634	105	918,079	2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
One (1) NMP Supply Tank	NMPST2	5,283			2023*		
Four (4) Emf Tanks	EMFT 5-7	528			2023*		

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Seven (7) LCNT Tanks	LCNT15-21	634	105	918,079	2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
One (1) NMP Supply Tank	NMPST3	5,283			2023*		
Four (4) Emf Tanks	EMFT 8-11	528			2023*		

(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Seven (7) LCNT Tanks	LCNT22-28	634	105	918,079	2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
One (1) NMP Supply Tank	NMPST4	5,283			2023*		
Four (4) Emf Tanks	EMFT 12-14	528			2023*		

(e) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2023 for construction, with a maximum heat input capacity of 5.0 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Different maximum heat input capacity boilers will be installed in their place and as such they have been removed.

Note: The above-mentioned emission units were never constructed.

"Integral Part of the Process" Determination

The source submitted the following information to justify why the Solvent Recovery Towers (SRT01-SRT08) should be considered an integral part of the cathode coating process (C-Coat1 to C-Coat8):

(a) The primary purpose of the Solvent Recovery Towers is to recover N-Methylpyrrolidone (NMP) solvent. The secondary purpose of the Solvent Recovery Towers is to treat air pollution. The Solvent Recovery Towers concentrates and recovers NMP contained in the exhaust gas utilizing the NMP's water solubility. This results in the Solvent Recovery Towers treating 99.8% or more of the emissions generated from the emission sources before discharging to the atmosphere.

(b) StarPlus expects that NMP recovery will save $86,632,000 over a year. The purchase price of the recovery system is about $32,400,000 for 8 units, not including the installation cost. The calculation assumes that the amount of NMP used in one year is 31,000 tons and 99.8% of the NMP is recovered, when there are 8 process lines.

(c) Even if there are no air quality regulations the equipment must be installed for resource recovery. NMP is an expensive solvent ($2800/ton), and the system is in place to recover enough of it as possible.

IDEM, OAQ evaluated the information submitted and agrees that the Solvent Recovery Towers (SRT01-SRT08) should be considered an integral part of the cathode coating process. Therefore, the potential to emit VOC from the cathode coating process was calculated after the Solvent Recovery Towers (SRT01-SRT08) for purposes of determining permitting level and applicability of 326 IAC 2-2 (PSD). Operating conditions in the proposed permit will specify that the solvent recovery system shall operate at all times the cathode coating process is in operation.

Enforcement Issues

There are no pending enforcement actions related to this modification.

Emission Calculations

See Appendix A of this Technical Support Document for detailed emission calculations.

Permit Level Determination – Part 70 Modification to an Existing Source

Pursuant to 326 IAC 2-1.1-1(12), Potential to Emit is defined as "the maximum capacity of a stationary source or emission unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, IDEM, or the appropriate local air pollution control agency."

The following table is used to determine the appropriate permit level under 326 IAC 2-7-10.5. This table reflects the PTE before controls. If the control equipment has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the integral control device.

PTE Before Controls of the New Emission Units (ton/year)

Emissions Unit	PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs**	Cobalt	Nickel
CMC Booth (#5-8) & Anode Conductive Powder Booth (#5-8)	0.34	0.34	0.34							
CMC Silo (#5-8) & Anode Conductive Powder Silo (#9-16)	0.34	0.34	0.34							
CMC Mixer (#13-24)	0.34	0.34	0.34							
CMC Storage Tank (#25-48)										
PD Mixer (#25-48)	38.33	38.33	38.33			0.33				
Anode Inlet (#17-32)	37.98	37.98	37.98							

PTE Before Controls of the New Emission Units (ton/year)										
Emissions Unit	**PM**	**PM10**	**PM2.5 ***	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs****	**Cobalt**	**Nickel**
Anode Silo (#17-32) & Anode Mixer Hopper (#25-48)	75.97	75.97	75.97							
Storage Tank (#49-96)										
Coater Buffer Tank (#11-20)										
Binder Booths (#5-8)	0.63	0.63	0.63					-		
Binder Silos (#9-16)	0.63	0.63	0.63					-		
Binder Mixer (#9-16)	0.63	0.63	0.63			3.40		-		
Binder Storage Tank (#17-32)	-	-	-			3.38		-		
Cathode Inlet (#15-28)	56.25	56.25	56.25					24.00	8.25	15.75
Cathode Silo (#15-28) & Cathode Mixer Hopper (#15-28)	112.50	112.50	112.50					48.00	16.5	31.5
NMP Supply Tank (#5-8)	-	-	-			6.97E-03				
HD Mixers (#15-28)	57.00	57.00	57.00			1.74E-01				
EMR Buffer Tanks (#15-28)						1.06E-02				
Slurry Storage Tank (#29-56)						1.06E-02				
Coater Buffer Tank (#6-10)						1.06E-02				
Anode Coater/Dryer (#5-8)						6.82				
C-Coat5 to C-Coat8 & SRT-05 to SRT-08						41.44				
Anode Slitting (AS5-AS8)	1.21	1.21	1.21							
Cathode Slitting (AS5-AS8)	0.39	0.39	0.39							
Assembly General						1.60		0.03		
Stacking (S5_1 to S8_25)	1.57	1.57	1.57							
LPW (LPW5-1 to LPW8-2)	21.82	21.82	21.82							
CAN-CAP Welding (CanCap5-1 to CanCap8-2)	0.282	0.282	0.282							
Electrolyte filling (EFM33-EFM64)						0.22	-			
HVC FRONT (HVC5-HVC8)						2.61	-			
Sealing (SPW5-1 to SPW8-2)	8.37E-06	8.37E-06	8.37E-06							
Taping (TM-8 to TM-16)	0.3816	0.3816	0.3816							
SD5- SD8, HB5- HBB8, PSA9-PSA16 & CUS9-CUS16						1.26		0.00		
FSW5-8 & BW5-8, FEW5-8	0.90	0.90	0.90							
Packing						1.26				
EST-2						0.26				
USED NMP Storage						0.008				
USB-2						0.003				
Innovation						0.00				
Boilers (Boiler3-4)	0.08	0.33	0.33	0.03	4.29	0.24	3.61	0.081		9.02E-05
Hot Water Heater (W-Heating2)	0.12	0.49	0.49	0.04	6.44	0.35	5.41	0.122		1.35E-04
Space Heating (S-Heating61-120)	0.11	0.42	0.42	0.03	5.58	0.31	4.69	0.105		1.17E-04
Emergency Generators (Emgen11-20)	0.13	1.28	1.28	0.01	29.39	0.39	49.48	0.427		
FirePump (F-Pump-2)	0.22	0.12	0.12	1.09	6.93	0.19	1.84	0.003		
Diesel Storage Tank (DST-2)						2.37E-03				
Welding	0.01	0.01	0.01					6.50E-04		
Paint Booth	0.04	0.04	0.04			0.04		0.06		
Cooling towers (CWT27-CWT30)	*6.90*	*3.86*	*0.01*							
FEW1-FEW4	0.36167	0.36167	0.36167							
Boilers (1-2)	0.20	0.82	0.82	0.06	10.74	0.59	9.02	0.20		
Total PTE Before Controls of the New Emission Units:	415.67	414.39	410.54	1.23	58.65	64.02	70.07	72.95	24.75	47.25

[1]$PM_{2.5}$ listed is direct $PM_{2.5}$.

[2]Single highest HAP.

PTE Increases Due to the Modification of Existing Units											
Process/ Emission Unit		PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs	Cobalt	Nickel
CMC Booth (#1-4) & Anode Conductive Powder Booth (#1-4)	Before Modification	19.792	19.792	19.792							
	After Modification	0.344	0.344	0.344							
	PTE Increase	-	-	-	-	-	-	-	-	-	-

PTE Increases Due to the Modification of Existing Units											
Process/ Emission Unit		PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs	Cobalt	Nickel
CMC Silo (#1-4) & Anode Conductive Powder Silo (#1-8)	Before Modification	19.792	19.792	19.792							
	After Modification	0.344	0.344	0.344							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
CMC Mixer (#1-12)	Before Modification	3.125	3.125	3.125							
	After Modification	0.344	0.344	0.344							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
CMC Storage Tank (#1-24)	Before Modification	0	0	0							
	After Modification	0	0	0							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
PD Mixer (#1-24)	Before Modification	394.792	394.792	394.792			2.807				
	After Modification	38.326	38.326	38.326			0.326				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Anode Inlet (#1-16)	Before Modification	375.000	375.000	375.000							
	After Modification	37.983	37.983	37.983							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Anode Silo (#1-16) & Anode Mixer Hopper (#1-24)	Before Modification	750.000	750.000	750.000							
	After Modification	75.965	75.965	75.965							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Storage Tank (#1-48)	Before Modification	0	0	0							
	After Modification	0	0	0							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Coater Buffer Tank (#1-10)	Before Modification	0	0	0							
	After Modification	0	0	0							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Booths (#1-4)	Before Modification	5.625	5.625	5.625							
	After Modification	0.625	0.625	0.625							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Silos (#1-8)	Before Modification	5.625	5.625	5.625							
	After Modification	0.625	0.625	0.625							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Mixer (#1-8)	Before Modification	5.625	5.625	5.625			3.397				
	After Modification	0.625	0.625	0.625			3.397				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Storage Tank (#1-16)	Before Modification						3.374				
	After Modification	0.000	0.000	0.000			3.374				
	PTE Increase	-	-	-	-	-	-	-			
Cathode Inlet (#1-14)	Before Modification	226.875	226.875	226.875					96	33	63
	After Modification	56.250	56.250	56.250					24	8.25	15.75
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Cathode Silo (#1-14) & Cathode Mixer Hopper (#1-14)	Before Modification	453.750	453.750	453.750					192	66	126
	After Modification	112.500	112.500	112.500					48	16.5	31.5
	PTE Increase	-	-	-	-	-	-	-	-	-	-
HD Mixers (#1-14)	Before Modification	232.500	232.500	232.500			0.011				
	After Modification	57.000	57.000	57.000			0.174				
	PTE Increase	-	-	-	-	-	0.163	-	-	-	-
EMR Buffer Tanks (#1-14)	Before Modification	0	0	0	0	0	0.000	0			
	After Modification	0	0	0	0	0	0.011	0			
	PTE Increase	-	-	-	-	-	0.011	-			
Slurry Storage Tank (#1-28)	Before Modification	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
	After Modification						0.011				
	PTE Increase	-	-	-	-	-	0.011	-			
Coater Buffer Tank (#1-5)	Before Modification	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
	After Modification						0.011				
	PTE Increase	-	-	-	-	-	0.011	-	-	-	-

PTE Increases Due to the Modification of Existing Units											
Process/ Emission Unit		PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs	Cobalt	Nickel
A-coat1 to A-coat4	Before Modification						55.824				
	After Modification						6.815				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
C-coat1 to C-coat4	Before Modification						180.500				
	After Modification						41.435				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Anode Slitting (AS1-AS4)	Before Modification	1.206	1.206	1.206							
	After Modification	1.21	1.21	1.21							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Cathode Coating (CS1-CS4)	Before Modification	0.388	0.388	0.388							
	After Modification	0.388	0.388	0.388							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Assembly General	Before Modification						6.898		3.00E-01		
	After Modification						1.602		3.00E-02		
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Stacking (S1_1 to S4_25)	Before Modification	1.595	1.595	1.595							
	After Modification	1.567	1.567	1.567							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
LPW (LPW1-1 to LPW4-2)	Before Modification	0.015	0.015	0.015							
	After Modification	21.820	21.820	21.820							
	PTE Increase	21.805	21.805	21.805							
CAN-CAP WELDING (CanCap1-1 to CanCap4-2)	Before Modification	0.004	0.004	0.004							
	After Modification	0.282	0.282	0.282							
	PTE Increase	0.278	0.278	0.278							
ELECTROLYTE FILLING (EFM1-EFM32)	Before Modification						0.443				
	After Modification						0.222				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
HVC FRONT (HVC1-HVC4)	Before Modification						5.210				
	After Modification						2.606				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
SEALING (SPW1-1 to SPW4-2)	Before Modification	4.68E-04	4.68E-04	4.68E-04							
	After Modification	8.37E-06	8.37E-06	8.37E-06							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Taping (TM-1 to TM-8)	Before Modification	0.089	0.089	0.089							
	After Modification	0.382	0.382	0.382							
	PTE Increase	0.293	0.293	0.293	-	-	-	-	-	-	-
SD1- SD4, HBB1-HBB4, PSA1-PSA8 & CUS1-CUS8	Before Modification						5.052		1.63E-02		
	After Modification						1.260		3.26E-03		
	PTE Increase	-	-	-	-	-	-	-	-	-	-
FSW1-4 , BW1-4	Before Modification	0.007	0.007	0.007							
	After Modification	0.543	0.543	0.543							
	PTE Increase	0.535	0.535	0.535	-	-	-	-	-	-	
Packing	Before Modification						5.052				
	After Modification						1.260				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Cooling towers (CWT1-CWT26)	Before Modification	73.643	73.643	73.643							
	After Modification	18.411	10.281	0.039							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Hot Water Heater	Before Modification	0.122	0.490	0.490	0.039	6.441	0.354	5.411	0.122		
	After Modification	0.110	0.441	0.441	0.035	5.797	0.319	4.870	0.109		
	PTE Increase	-	-	-	-	-	-	-	-	-	-

PTE Increases Due to the Modification of Existing Units										
Process/ Emission Unit	PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs	Cobalt	Nickel
Total PTE Increase of the Modified Emission Unit(s)/Process	22.91	22.91	22.91	0	0	0.195	0	0	0	0
[1]$PM_{2.5}$ listed is direct $PM_{2.5}$.										

	PTE Increases Due to the Modification (ton/year)									
	PM	**PM_{10}**	**$PM_{2.5}$[1]**	**SO_2**	**NO_X**	**VOC**	**CO**	**Total HAPs**	**Cobalt**	**Nickel**
Total PTE Before Controls of the New Emission Units	415.67	414.39	410.54	1.23	58.65	64.02	70.07	72.95	24.75	47.25
Total PTE Increase of the Modified Emission Unit(s)/Process	22.91	22.91	22.91	0	0	0.19	0	0	0	0
Total PTE of the Modification	**438.58**	**437.30**	**433.45**	**1.23**	**58.65**	**64.22**	**70.07**	**72.95**	**24.75**	**47.25**
[1]$PM_{2.5}$ listed is direct $PM_{2.5}$.										
[2]Single highest HAP.										

Appendix A of this TSD reflects the detailed potential emissions of the modification.

(a) Approval to Construct

Pursuant to 326 IAC 2-7-10.5(g)(4), a Significant Source Modification is required because this modification has the potential to emit PM/PM10/direct PM2.5, nitrogen oxides (NOx), VOC at equal to or greater than twenty-five (25) tons per year.

Pursuant to 326 IAC 2-7-10.5(g)(6), a Significant Source Modification is required because this modification has a potential to emit equal to or greater than ten (10) tons per year of a single HAP and/or twenty-five (25) tons per year of any combination of HAPs.

(b) Approval to Operate

Pursuant to 326 IAC 2-7-12(d)(1), this change to the permit is being made through a Significant Permit Modification because this modification does not qualify as a Minor Permit Modification or as an Administrative Amendment.

Permit Level Determination – PSD

The table below summarizes the potential to emit of the modification, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of the Part 70 source and/or permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit. If the control equipment has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the integral control device.

	Project Emissions (ton/year)						
Process / Emission Unit	**PM**	**PM_{10}**	**$PM_{2.5}$[1]**	**SO_2**	**NO_X**	**VOC**	**CO**
Plant 1	107.91	102.11	91.86	1.23	58.65	104.83	70.07
Plant 2	96.40	95.68	91.84	1.23	58.6	104.8	70.1
Total for Modification	204.31	197.79	183.70	2.47	117.30	209.66	140.15
PSD Major Source Thresholds	250	250	250	250	250	250	250
[1]$PM_{2.5}$ listed is direct $PM_{2.5}$. VOC emissions are after integral solvent recovery system							

The source opted to take limit(s) in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable to this modification. See Technical Support Document (TSD) State Rule Applicability - Entire Source section, 326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset) for more information regarding the limit(s).

(a) This modification to an existing minor PSD stationary source is not major because the emissions increase of each PSD regulated pollutant is less than the PSD major source threshold. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

PTE of the Entire Source After Issuance of the Part 70 Modification

The table below summarizes the after issuance source-wide potential to emit, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of the Part 70 source and/or permit modification, and only to the extent that the effect of the control equipment is made practically enforceable in the permit. If the control equipment has been determined to be integral, the table reflects the potential to emit (PTE) after consideration of the integral control device.

	Source-Wide Emissions Prior to Modification (ton/year)									
	PM[1]	**PM_{10}[1]**	**$PM_{2.5}$[1,2]**	**SO_2**	**NO_X**	**VOC**	**CO**	**Single HAP[3]**		**Total HAPs**
StarPlus Energy LLC (067-00093) Total PTE Excluding Fugitives*	204.31	197.79	183.70	2.47	117.30	209.66	140.15	9.92 (Nickel)	5.20 (Cobalt)	17.02
JWA CO., LTD. (067-00096) Total PTE Excluding Fugitives*	6.83	7.62	7.62	0.58	17.28	16.33	13.28	-	-	0.27
Total PTE of Entire Source	**211.14**	**205.41**	**191.32**	**3.05**	**134.58**	**225.99**	**153.43**	**9.92 (Nickel)**	**5.20 (Cobalt)**	**17.29**
Title V Major Source Thresholds	NA	100	100	100	100	100	100	10		25
PSD Major Source Thresholds	250	250	250	250	250	250	250	--		--

[1]Under the Part 70 Permit program (40 CFR 70), PM_{10} and $PM_{2.5}$, not particulate matter (PM), are each considered as a "regulated air pollutant."

[2]$PM_{2.5}$ listed is direct $PM_{2.5}$.

[3]Single highest source-wide HAP (Nickel, Cobalt)

*Fugitive HAP emissions are always included in the source-wide emissions

VOC emissions are after integral solvent recovery system.

The source opted to take limit(s) in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and not applicable to this source and to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA). See Technical Support Document (TSD) State Rule Applicability - Entire Source section, 326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset) and 326 IAC 20 (Hazardous Air Pollutants) for more information regarding the limit(s).

(a) This existing minor PSD stationary source will continue to be minor under 326 IAC 2-2 because the emissions of each PSD regulated pollutant will continue to be less than the PSD major source thresholds.

(b) This existing area source of HAP will continue to be an area source of HAP, as defined in 40 CFR 63.2, because HAP emissions will continue to be less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA).

Federal Rule Applicability Determination

Due to the modification at this source, federal rule applicability has been reviewed as follows:

New Source Performance Standards (NSPS):

(a) The requirements of the New Source Performance Standard for Metal Coil Surface Coating 40 CFR 60, Subpart TT and 326 IAC 12, are not included in the permit for this source, because the coating done at this source will have a maximum thickness of 0.012 millimeters which is lesser than the 0.15 millimeters that the rule requires to be applicable.

(b) The requirements of the New Source Performance Standard for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984,40 CFR 60.110b, Subpart Kb and 326 IAC 12, are not included in the permit for this source since all tanks have volumes less than 75 m3 (19,813 gallons).

(c) The requirements of the New Source Performance Standard for Small Industrial - Commercial-Institutional Steam Generating Units 40 CFR 60, Subpart DC and 326 IAC 12, are not included in the permit for:

(1) The six (6) natural gas-fired hot water heaters, identified as W-Heating1 to W-Heating6, are considered process heaters as they heat water for production and, as such, are not subject to this NSPS.

The requirements of the New Source Performance Standard for Small Industrial - Commercial-Institutional Steam Generating Units 40 CFR 60, Subpart DC and 326 IAC 12, are included in the permit for Boiler1 - Boiler4 as they have a maximum heat input capacity greater than 10 MMbtu/hr:

Plant 1:

(q) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

Plant 2:

(q) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

The units are subject to the following portions of Subpart Dc:

(1) 40 CFR 60.40c (a)
(2) 40 CFR 60.41c

(3) 40 CFR 60.48c (a)
(4) 40 CFR 60.48c (g)
(5) 40 CFR 60.48c (i)
(6) 40 CFR 60.48c (j)

(d) The requirements of the New Source Performance Standard for Volatile Organic Compound (VOC) Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations 40 CFR 60, Subpart NNN, are not included in the permit for the eight (8) integral solvent recovery towers "SRT-01 to SRT-08", as it does not meet the definition of distillation.

(e) Two (2) 1,237 HP diesel-fired fire pumps, identified as F-pump and F-pump-2 , are subject to the New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines 40 CFR 60, Subpart IIII and 326 IAC 12, because they are a Stationary Compression Ignition Internal Combustion Engines that commenced construction after July 11, 2005, and are manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

The units subject to this rule includes the following:

Plant 1:

(e) One (1) diesel fire pump, identified as F-pump1, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

Plant 2:

(e) One (1) diesel fire pumps, identified as F-pump-2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

The units are subject to the following portions of Subpart IIII.

(1) 40 CFR 60.4200(a)(2)(ii) and (c)
(2) 40 CFR 60.4202(d)
(3) 40 CFR 60.4205(c)
(4) 40 CFR 60.4206
(5) 40 CFR 60.4207(b)
(6) 40 CFR 60.4209(a)
(7) 40 CFR 60.4211(a), (c), (f)
(8) 40 CFR 60.4214(b)
(9) 40 CFR 60.4218
(10) 40 CFR 60.4219
(11) Table 3
(12) Table 4
(13) Table 5
(14) Table 8

The requirements of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to the unit except as otherwise specified in 40 CFR 60, Subpart IIII.

(f) Twenty 700 HP natural gas-fired emergency generators, identified as Emgen01-Emgen10 at Plant 1 and Emgen11 through Emgen 20, are subject to the New Source Performance Standards for Stationary Spark Ignition Internal Combustion Engines 40 CFR 60, Subpart JJJJ and 326 IAC 12, because each engine is a spark ignition internal combustion engine that commenced construction after June 12, 2006 and was manufactured on or after January 1, 2009, and is an emergency engine with a maximum engine power greater than 19 KW (25 HP). The unit subject to this rule includes the following:

Plant 1:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.
Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source

Plant 2:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

The unit is subject to the following portions of Subpart JJJJ.

(1) 40 CFR 60.4230(a)(4)(iv), (a)(6), (c)
(2) 40 CFR 60.4233(c),(h)
(3) 40 CFR 60.4234
(4) 40 CFR 60.4236(c)
(5) 40 CFR 60.4237(a)
(6) 40 CFR 60.4243(a), (d), (e)
(7) 40 CFR 60.4244
(8) 40 CFR 60.4245(a)(1), (a)(2), (b), (e)
(9) 40 CFR 60.4246
(10) 40 CFR 60.4248
(11) Table 1
(12) Table 3

The requirements of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to the unit except as otherwise specified in 40 CFR 60, Subpart JJJJ.

(g) There are no other New Source Performance Standards (40 CFR Part 60) and 326 IAC 12 included in the permit for this proposed new source.

National Emission Standards for Hazardous Air Pollutants (NESHAP):

(a) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Area Sources: Chemical Manufacturing 40 CFR 63, Subpart VVVVVV are not included in the permit for this source, since it is subject to 40 CFR 63, subpart CCCCCCC.

EPA memo dated April 8, 2020, found that in the process of determining whether LGCMI's cathode mixing line is subject to the Subpart 6V regulations, as requested in their letter, EPA concluded that an analysis under Subpart 7C was more appropriate. Furthermore, facilities that are subject to Subpart 7C are not subject to Subpart 6V under 40 C.F.R. §63.11494(c)(1).

(b) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Area Sources: Chemical Prep Industry, 40 CFR 63, Subpart BBBBBBB are not included in the permit for this facility, since 40 CFR §63.11579(f) states that a facility is exempt from Subpart BBBBBBB if the facility is subject to Subpart VVVVVV or Subpart CCCCCCC; which this facility is.

(c) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDDD and 326 IAC 20-95 are not included in the permit for this facility, as it is an area source.

(d) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Industrial, Commercial, and Institutional Boilers Area Sources 40 CFR 63, Subpart JJJJJJ are not included in the permit for the units identified as Boiler1, Boiler2, Boiler 3, Boiler 4, W-Heating1 to W-Heating6 since per §63.11195, gas-fired units are exempt.

(e) The units are subject to the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63, Subpart ZZZZ which is incorporated by reference as 326 IAC 20-82, because both units were constructed after June 12, 2006, and are at an area source. The facilities subject to this rule include the following:

Plant1:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(d) One (1) diesel fire pump, identified as F-pump1, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

Plant2:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(d) One (1) diesel fire pumps, identified as F-pump-2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

There emission units are subject to the following portions of Subpart ZZZZ:

(1) 40 CFR 63.6580
(2) 40 CFR 63.6585
(3) 40 CFR 63.6590(a)(2)(iii) and (c) (1)
(4) 40 CFR 63.6595(a)(7)
(5) 40 CFR 63.6665
(6) 40 CFR 63.6670
(7) 40 CFR 63.6675

Pursuant to 40 CFR 63.6665, the natural gas fired generators and diesel fire pump do not have to meet the requirements of 40 CFR 63, Subpart A (General Provisions), since each unit is considered a new stationary RICE located at an area source of HAP emissions.

(f) The cathode raw material handling and mixing line (Cline1- Cline4 and Cline 5-Cline8) are subject to the National Emission Standards for Hazardous Air Pollutants for Manufacture of Paint and Allied Products, 40 CFR 63, Subpart CCCCCCC, because it is performing paint and allied products manufacturing in an area source of hazardous air pollutants using and generating materials that contain the hazardous air pollutant Nickel. The units subject to this rule include the following:

CLine1- CLine4 and Cline5 – Cline8 are subject to the following portions of Subpart letter(s):

(1) 40 CFR 63.11599(a) & (b)
(2) 40 CFR 63.11600
(3) 40 CFR 63.11601
(4) 40 CFR 63.11602
(5) 40 CFR 63.11603(a), (b), (c)
(6) 40 CFR 63.11605
(7) 40 CFR 63.11606
(8) 40 CFR 63.11607
(9) Table 1

The requirements of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated as 326 IAC 20-1, apply to the units except as otherwise specified in 40 CFR 63, Subpart CCCCCCC

(g) There are no other National Emission Standards for Hazardous Air Pollutants under 40 CFR 63, 326 IAC 14 and 326 IAC 20 included for this proposed new source.

Compliance Assurance Monitoring (CAM):

(a) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is applicable to each pollutant-specific emission unit that meets the following criteria:

(1) has a potential to emit before controls equal to or greater than the major source threshold for the regulated pollutant involved;

(2) is subject to an emission limitation or standard for that pollutant (or a surrogate thereof); and

(3) uses a control device, as defined in 40 CFR 64.1, to comply with that emission limitation or standard.

(b) Pursuant to 40 CFR 64.2(b)(1)(i), emission limitations or standards proposed after November 15, 1990 pursuant to a NSPS or NESHAP under Section 111 or 112 of the Clean Air Act are exempt from the requirements of CAM. Therefore, an evaluation was not conducted for any emission limitations or standards proposed after November 15, 1990 pursuant to a NSPS or NESHAP under Section 111 or 112 of the Clean Air Act.'

The following table is used to identify the applicability of CAM to new and modified emission unit and each emission limitation or standard for a specified pollutant based on the criteria specified under 40 CFR 64.2:

Emission Unit	Pollutant	Control Device	Applicable Emission Limitation	Uncontrolled PTE *(tons/year)	Controlled PTE (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
CMC Booth (#1-4) & Anode Conductive Powder Booth (#1-4)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[1,2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
CMC Silo (#1-4) & Anode Conductive Powder Silo (#1-8)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[1,2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
CMC Mixer (#1-12)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[1,2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
PD Mixer (#1-24)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N [2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Anode Inlet (#1-16)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N [2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Anode Silo (#1-16) & Anode Mixer Hopper (#1-24)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N [2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Binder Booths (#1-4)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Binder Silos (#1-8)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Binder Mixer (#1-8)	PM10	BF, ACT	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF, ACT	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF, ACT	326 IAC 2-2	<100	<100	N[1]	N
	PM*	BF, ACT	326 IAC 6.5-1-2	<100	<100	N[1]	N
	VOC	BF, ACT	None	<100	<100	N[1]	N
Binder Storage Tank (#1-16)	VOC	**ACT**	None	<100	<100	N[1]	N
NMP Supply Tank (#1-4)	VOC	ACT	None	<100	<100	N[1]	N
Cathode Inlet (#1-14)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
	Cobalt / Cobalt compounds HAP	BF	Area Sources	<25 total <10 single	<25 total <10 single	N[1]	N
Cathode Silo (#1-14) &	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N

Emission Unit	Pollutant	Control Device	Applicable Emission Limitation	Uncontrolled PTE *(tons/year)	Controlled PTE (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
Cathode Mixer Hopper (#1-14)	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
	Cobalt / Cobalt compounds HAP	BF	Area Sources	<25 total <10 single	<25 total <10 single	N[1]	N
HD Mixers tank (#1-14)	PM10	BF, ACT	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF, ACT	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF, ACT	326 IAC 2-2	<100	<100	N[2]	N
	PM*	BF, ACT	326 IAC 6.5-1-2	<100	<100	N[1]	N
	VOC	BF, ACT	None	<100	<100	N[1]	N
EMF Buffer Tanks (#1-14)	VOC	ACT	None	<100	<100	N[1,3]	N
Slurry Storage Tank (#1-28)	VOC	ACT	None	<100	<100	N[1,3]	N
Coater Buffer Tank (#1-5)	VOC	ACT	None	<100	<100	N[1,3]	N
Anode Slitting (AS1 – AS4)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Cathode Slitting (CS1 – CS4)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Stacking (S1_1 to S4_25)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
LPW (LPW1 – LPW4)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
CAN-CAP WELDING (CanCap1-1 to CanCap4-2)	PM10	BF, ACT	None	<100	<100	N[1,3]	N
	PM2.5	BF, ACT	None	<100	<100	N[1,3]	N
	PM	BF, ACT	None	<100	<100	N[1,3]	N
	PM*	BF, ACT	326 IAC 6.5-1-2	<100	<100	N[1]	N
ELECTROLYTE FILLING (EFM1-EFM32)	VOC	ACT	None	<100	<100	N[1,3]	N
HVC FRONT (HVC1-HVC4)	VOC	ACT	None	<100	<100	N[1,3]	N
SEALING (SPW1-1 to SPW4-2)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Taping (TM-1 to TM-8)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
FRAME-BUSBAR WELDING (FSW1-4 , BW1-4 and FEW1-4)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
EST-1	VOC	ACT	None	<100	<100	N[1,3]	N
USED NMP Storage	VOC	ACT	None	<100	<100	N[1,3]	N
USB-1	VOC	ACT	None	<100	<100	N[1,3]	N
C-coat1 - C-coat4	VOC	SRT	326 IAC 2-2 326 IAC 8-2-4	<100	<100	N[1,4]	N
CMC Booth (#5-8) & Anode Conductive Powder Booth (#5-8)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[1,2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
CMC Silo (#5-8) & Anode Conductive Powder Silo (#9-16)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[1,2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
CMC Mixer (#13-24)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N

Emission Unit	Pollutant	Control Device	Applicable Emission Limitation	Uncontrolled PTE *(tons/year)	Controlled PTE (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[1,2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
PD Mixer (#25-48)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N [2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Anode Inlet (#17-32)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N [2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Anode Silo (#17-32) & Anode Mixer Hopper (#24-48)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N [2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Binder Booths (#5-8)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Binder Silos (#9-16)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Binder Mixer (#9-16)	PM10	BF, ACT	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF, ACT	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF, ACT	326 IAC 2-2	<100	<100	N[1]	N
	PM*	BF, ACT	326 IAC 6.5-1-2	<100	<100	N[1]	N
	VOC	BF, ACT	None	<100	<100	N[1]	N
Binder Storage Tank (#17-32)	VOC	**ACT**	None	<100	<100	N[1]	N
Cathode Inlet (#15-28)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
	Cobalt / Cobalt compounds HAP	BF	Area Sources	<25 total <10 single	<25 total <10 single	N[1]	N
Cathode Silo (#15-28) & Cathode Mixer Hopper (#15-28)	PM10	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF	326 IAC 2-2	<100	<100	N[2]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
	Cobalt / Cobalt compounds HAP	BF	Area Sources	<25 total <10 single	<25 total <10 single	N[1]	N
NMP Supply Tank (#5-8)	VOC	ACT	None	<100	<100	N[1]	N
HD Mixers tank (#15-28)	PM10	BF, ACT	326 IAC 2-2	<100	<100	N[1]	N
	PM2.5	BF, ACT	326 IAC 2-2	<100	<100	N[1]	N
	PM	BF, ACT	326 IAC 2-2	<100	<100	N[2]	N
	PM*	BF, ACT	326 IAC 6.5-1-2	<100	<100	N[1]	N
	VOC	BF, ACT	None	<100	<100	N[1]	N
EMF Buffer Tanks (#15-28)	VOC	ACT	None	<100	<100	N[1,3]	N
Slurry Storage Tank (#29-56)	VOC	ACT	None	<100	<100	N[1,3]	N
Coater Buffer Tank (#6-10)	VOC	ACT	None	<100	<100	N[1,3]	N
Anode Slitting (AS5 – AS8)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Cathode Slitting (CS5 – CS8)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Stacking (S5 – S8)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N

Emission Unit	Pollutant	Control Device	Applicable Emission Limitation	Uncontrolled PTE *(tons/year)	Controlled PTE (tons/year)	CAM Applicable (Y/N)	Large Unit (Y/N)
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
LPW (LPW5 – LPW8)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
CAN-CAP WELDING (CanCap5-1 to CANCAP8-2)	PM10	BF, ACT	None	<100	<100	N[1,3]	N
	PM2.5	BF, ACT	None	<100	<100	N[1,3]	N
	PM	BF, ACT	None	<100	<100	N[1,3]	N
	PM*	BF, ACT	326 IAC 6.5-1-2	<100	<100	N[1]	N
ELECTROLYTE FILLING (EFM33-EFM64)	VOC	ACT	None	<100	<100	N[1,3]	N
HVC FRONT (HVC5-HVC8)	VOC	ACT	None	<100	<100	N[1,3]	N
SEALING (SPW5-1 to SPW8-2)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
Taping (TM-8 to TM-16)	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
FSW5-8, BW5-8 & FEW5-8	PM10	BF	None	<100	<100	N[1,3]	N
	PM2.5	BF	None	<100	<100	N[1,3]	N
	PM	BF	None	<100	<100	N[1,3]	N
	PM*	BF	326 IAC 6.5-1-2	<100	<100	N[1]	N
EST-2	VOC	ACT	None	<100	<100	N[1,3]	N
USED NMP Storage	VOC	ACT	None	<100	<100	N[1,3]	N
USB-2	VOC	ACT	None	<100	<100	N[1,3]	N
C-coat5 - C-coat8	VOC	SRT	326 IAC 2-2 326 IAC 8-2-4	<100	<100	N[1,4]	N

Under the Part 70 Permit program (40 CFR 70), PM is not a regulated air pollutant.

Uncontrolled PTE (tpy) and controlled PTE (tpy) are evaluated against the Major Source Threshold for each pollutant. Major Source Threshold for regulated air pollutants (PM10, PM2.5, SO2, NOx, VOC and CO) is 100 tpy, for a single HAP ten (10) tpy, and for total HAPs twenty-five (25) tpy.

Uncontrolled PTE * For each individual unit

PM* For limitations under 326 IAC 6-3-2, 326 IAC 6.5, and 326 IAC 6.8, IDEM OAQ uses PM as a surrogate for the regulated air pollutant PM10. Therefore, uncontrolled PTE and controlled PTE reflect the emissions of the regulated air pollutant PM10.

N [1] CAM does not apply for PM, PM_{10}, $PM_{2.5}$ and VOC because the uncontrolled PTE of PM, PM_{10}, $PM_{2.5}$ and VOC from each emission unit is less than the major source threshold.

N [2] Under 326 IAC 2-2, PM is not a surrogate for a regulated air pollutant. Therefore, CAM does not apply to these emission units for the 326 IAC 2-2 PM limitation.

N [3] The control device is not required to comply with the applicable emission limitation or standard. Therefore, based on this evaluation, the requirements of 40 CFR Part 64, CAM, are not applicable.

N [4] Pursuant to 40 CFR Part 64.1, the control devices are considered to be inherent process equipment. Therefore, based on the evaluation, the requirements of 40 CFR Part 64, CAM, are not applicable.

Controls: BH = Baghouse, C = Cyclone, DC = Dust Collection System, RTO = Regenerative or Recuperative Thermal Oxidizer, WS = Wet Scrubber, ESP = Electrostatic Preciptator, ACT= Activated Carbon Tower , SRT= Solvent recovery tower

Emission units without air pollution controls are not subject to CAM. Therefore, they are not listed.

Inherent Process Equipment

Pursuant to 40 CFR Part 64.1, the definition of inherent process equipment is "equipment that is necessary for the proper or safe functioning of the process, or material recovery equipment that the owner or operator documents is installed and operated primarily for purposes other than compliance with air pollution regulations. Equipment that must be operated at an efficiency higher than that achieved during normal process operations in order to comply with the applicable emission limitation or standard is not inherent process equipment. For the purposes of this part, inherent process equipment is not considered subject to CAM."

The solvent recovery systems are determined to be necessary for the normal and proper operation of the cathode coating processes *(see the "Integral Part of the Process" Determination section above for more*

detail). Therefore, the solvent recovery systems meet the criteria for inherent to the process for the purpose of determining CAM applicability, and are not considered control devices. Therefore, the requirements of 40 CFR Part 64.2, CAM, do not apply to the cathode coating processes.

Based on this evaluation, the requirements of 40 CFR Part 64, CAM, are not applicable to any of the units as part of this modification.

State Rule Applicability - Entire Source

Due to this modification, state rule applicability has been reviewed as follows:

326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset)
PSD and Emission Offset applicability is discussed under the Permit Level Determination – PSD section and the Permit Level Determination - PSD Emissions Increase of this document.

All previous PSD minor source limits were revised based on updated information such as material throughputs, stack ID's, number of units….etc.

PM, PM_{10}, $PM_{2.}$PSD Minor Source Limits

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, the Permittee shall comply with the following:

(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	PM Limit (lbs/hour)	PM10 Limit (lbs/hour)	PM2.5 Limit (lbs/hour)
Cline1 to Cline4	01-PEF-03, 01-PEF-04 and 01-PEF-05	5.46	5.46	5.46
Aline1 to Aline4	01-PEF-01 and 01-PEF-02	8.75	8.75	8.75
Cline5 to Cline8	02-PEF-03, 02-PEF-04 and 02-PEF-05	5.46	5.46	5.46
Aline5 to Aline8	02-PEF-01 and 02-PEF-02	8.75	8.75	8.75

*** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.

Compliance with these limits, shall limit the potential to emit of PM, PM10, PM2.5 to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

VOC PSD Minor Source Limits
While each of the nMP solvent recovery systems has been deemed integral to the cathode coating process, the high control efficiency requested by the source and the fact that without the integral nMP solvent recovery system each coating lines unlimited VOC emissions are higher than the PSD major source threshold, IDEM has opted to place PSD minor source limits on the coating lines.

(a) The controlled VOC emissions from each coating line C-coat1, C-coat2, C-coat3 and C-coat4, shall be less than 4.66 lb/hr, each.

(b) The controlled VOC emissions from each coating line C-coat5, C-coat6, C-coat7 and C-coat8, shall be less than 4.66 lb/hr, each.

Compliance with these limits, shall limit the potential to emit of VOC to less than 250 tons per twelve (12) consecutive month period, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The provisions of 326 IAC 2-4.1 apply to any owner or operator who constructs or reconstructs a major source of hazardous air pollutants (HAP), as defined in 40 CFR 63.41, after July 27, 1997, unless the

major source has been specifically regulated under or exempted from regulation under a NESHAP that was issued pursuant to Section 112(d), 112(h), or 112(j) of the Clean Air Act (CAA) and incorporated under 40 CFR 63. On and after June 29, 1998, 326 IAC 2-4.1 is intended to implement the requirements of Section 112(g)(2)(B) of the Clean Air Act (CAA).

The operation of this source will emit less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

326 IAC 2-6 (Emission Reporting)
This source is subject to the requirements of 326 IAC 2-6 (Emission Reporting), since it is required to have an operating permit under 326 IAC 2-7, Part 70 Permit Program. Pursuant to 326 IAC 2-6-3(a)(2), the Permittee shall submit triennially, by July 1, an emission statement covering the previous calendar year in accordance with the compliance schedule in 326 IAC 2-6-3. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

326 IAC 2-7-6(5) (Annual Compliance Certification)
The U.S. EPA Federal Register 79 FR 54978 notice does not exempt Title V Permittees from the requirements of 40 CFR 70.6(c)(5)(iv) or 326 IAC 2-7-6(5)(D), but the submittal of the Title V annual compliance certification to IDEM satisfies the requirement to submit the Title V annual compliance certifications to EPA. IDEM does not intend to revise any permits since the requirements of 40 CFR 70.6(c)(5)(iv) or 326 IAC 2-7-6(5)(D) still apply, but Permittees can note on their Title V annual compliance certifications that submission to IDEM has satisfied reporting to EPA per Federal Register 79 FR 54978. This only applies to Title V Permittees and Title V compliance certifications.

326 IAC 5-1 (Opacity Limitations)
This source is subject to the opacity limitations specified in 326 IAC 5-1-2(1)

326 IAC 6-4 (Fugitive Dust Emissions Limitations)
The source is subject to the requirements of 326 IAC 6-4, because the paved roads have the potential to emit fugitive particulate emissions. Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
This source is not subject to the requirements of 326 IAC 6-5, because the source has potential fugitive particulate emissions of less than twenty-five (25) tons per year.

326 IAC 6.5 (Particulate Matter Limitations Except Lake County)
This source (located in Howard County) is located in one of the counties listed in 326 IAC 6.5, but is not one of the sources specifically listed in 326 IAC 6.5-2 through 326 IAC 6.5-10. The source-wide PTE of PM is 10 tons per year or more. Therefore, this source is subject to the requirements of 326 IAC 6.5-1-2 because the source-wide actual emissions of PM can be 10 tons per year or more.

326 IAC 6.8 (Particulate Matter Limitations for Lake County)
Pursuant to 326 IAC 6.8-1-1(a), this source (located in Howard County) is not subject to the requirements of 326 IAC 6.8 because it is not located in Lake County.

326 IAC 6.8 (Lake County: Fugitive Particulate Matter)
Pursuant to 326 IAC 6.8-10-1, this source (located in Howard County) is not subject to the requirements of 326 IAC 6.8-10 because it is not located in Lake County.

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)
This rule applies to stationary vessels used to store volatile organic liquid (VOL) that are located in Clark, Floyd, Lake, and Porter counties. This source is located in Howard County. Therefore, the requirements of 326 IAC 8-9 are not applicable to any of the volatile organic liquid storage vessels at the source.

326 IAC 20 (Hazardous Air Pollutants)
In order to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA), the Permittee shall comply with the following:

The Nickel and Cobalt emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	Nickel Limit* (lbs/hour)	Cobalt Limit** (lbs/hour)
Cline1 to Cline4	01-PEF-03, 01-PEF-04 and 01-PEF-05	1.13	0.59
Cline5 to Cline8	02-PEF-03, 02-PEF-04 and 02-PEF-05	1.13	0.59

* Nickel refers to Nickel and Nickel compounds
** Cobalt refers to Cobalt and Cobalt compounds
*** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.

Compliance with these limits, combined with the potential to emit HAP from all other emission units at the source, shall limit the source-wide potential to emit single HAP to less than 10 tons per twelve (12) consecutive month period and the source-wide potential to emit total HAPs to less than 25 tons per twelve (12) consecutive month period, and shall render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

State Rule Applicability – Individual Facilities

Due to this modification, state rule applicability has been reviewed as follows:

326 IC 6-2 (Particulate Matter Emission Limitations for Sources of Indirect Heating)

Pursuant to 326 IAC 6-2-1(e), if any limitation established in 326 IAC 6-2 is inconsistent with applicable limitations contained in 326 IAC 6.5, then the limitations contained in 325 IAC 6.5. The indirect heating facilities are subject to limitations established in 326 IAC 6.5. Therefore, the limitations of 326 IAC 6-2 are not applicable.

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

Pursuant to 326 IAC 6-3-1(c)(3), the rule does not apply if a particulate matter emission limitation is established in 326 IAC 6.5. This source is subject to the requirements of 326 IAC 6.5 and is therefore not subject to the requirements of 326 IAC 6-3.

326 IAC 6.5 Particulate Matter Limitations Except Lake County
This source is subject to the requirements of 326 IAC 6.5-1-2. The units listed below shall comply with the following particulate matter emission limits:

Plant 1:

Unit/Process Name	Unit ID	Limit
Cathode Inlet Tanks	Cathode Inlet 1 - Cathode Inlet 14	0.03 grain/dscf *
HD Mixer Tanks	HD 1- HD 14	0.03 grain/dscf *
Binder Silos	Binder Silo1- Binder Silo8	0.03 grain/dscf *
Binder Booth	Binder booth 1- Binder booth 4	0.03 grain/dscf *
Cathode Silos	Cathode silo 1- Cathode silo 14	0.03 grain/dscf *
Cathode Mixer Hoppers	CMH 1- CMH 14	0.03 grain/dscf *
Binder Mixes	Binder Mixer 1- Binder Mixer 8	0.03 grain/dscf *
PD Mixers	PDM 1- PDM 24	0.03 grain/dscf *
CMC Mixers	CMC Mixer 1- CMC Mixer 12	0.03 grain/dscf *
Anode Conductive Powder Booth	ACPB 1- ACPB 4	0.03 grain/dscf *
CMC Booth	CMC Booth 1- CMC Booth 4	0.03 grain/dscf *
Anode Conductive Powder Silos	ACPS 1- ACPS 8	0.03 grain/dscf *
CMC Silo	CMC Silo 1- CMC Silo 4	0.03 grain/dscf *
Anode Inlets	Anode Inlet 1- Anode Inlet 16	0.03 grain/dscf *

Anode Silos	Anode Silo 1- Anode Silo 16	0.03 grain/dscf *
Anode Mixer Hoppers	AMH1-AMH24	0.03 grain/dscf *
Anode Slitters	AS1-AS4	0.03 grain/dscf *
Cathode Slitters	CS1-CS4	0.03 grain/dscf *
Stackers	S1_1 to S1_32	0.03 grain/dscf *
	S2_1 to S2_32	
	S3_1 to S3_25	
	S4_1 to S4_25	
LPW welding	LPW1-1 to LPW1-2	0.03 grain/dscf *
	LPW2-1 to LPW2-2	
	LPW3-1 to LPW3-2	
	LPW4-1 to LPW4-2	
CanCap welding	CanCap1-1 to CANCAP1-2	0.03 grain/dscf *
	CanCap2-1 to CANCAP2-2	
	CanCap3-1 to CANCAP3-2	
	CanCap4-1 to CANCAP4-2	
seal pin welding	SPW1-1 to SPW1-2	0.03 grain/dscf *
	SPW2-1 to SPW2-2	
	SPW3-1 to SPW3-2	
	SPW4-1 to SPW4-2	
Taping machines	TM1-TM8	0.03 grain/dscf *
Frame side welding	FSW1-FSW4	0.03 grain/dscf *
Busbar welding	BW1-BW4	0.03 grain/dscf *
Frame End Welding	FEW1-FEW4	0.03 grain/dscf*
Natural Gas-Fired Emergency Generators	Emgen01-Emgen10	0.03 grain/dscf *
Natural Gas-Fired Hot Water Heater	W-Heating1 to W-Heating3	0.03 grain/dscf *
Natural gas-fired space heaters	S-Heating01 to S-Heating-60	0.03 grain/dscf *
Diesel Fire Pump	F-pump1	0.03 grain/dscf *
Natural Gas-Fired Boilers	Boiler1-Boiler2	0.01 grain/dscf*
cooling towers	CWT01-CWT26	0.03 grain/dscf *
Maintenance welding	Maintenance welding	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

Plant 2:

Unit/Process Name	Unit ID	Limit
Cathode Inlet Tanks	Cathode Inlet 15 - Cathode Inlet 28	0.03 grain/dscf *
HD Mixer Tanks	HD 15- HD 28	0.03 grain/dscf *
Binder Silos	Binder Silo9- Binder Silo16	0.03 grain/dscf *
Binder Booth	Binder booth 5- Binder booth 8	0.03 grain/dscf *
Cathode Silos	Cathode silo 15- Cathode silo 28	0.03 grain/dscf *
Cathode Mixer Hoppers	CMH 15- CMH 28	0.03 grain/dscf *
Binder Mixes	Binder Mixer 9- Binder Mixer 16	0.03 grain/dscf *
PD Mixers	PDM 25- PDM 48	0.03 grain/dscf *
CMC Mixers	CMC Mixer 13- CMC Mixer 24	0.03 grain/dscf *
Anode Conductive Powder Booth	ACPB 5- ACPB 8	0.03 grain/dscf *
CMC Booth	CMC Booth 5- CMC Booth 8	0.03 grain/dscf *
Anode Conductive Powder Silos	ACPS 9- ACPS 16	0.03 grain/dscf *
CMC Silo	CMC Silo 5- CMC Silo 8	0.03 grain/dscf *
Anode Inlets	Anode Inlet 17- Anode Inlet 32	0.03 grain/dscf *
Anode Silos	Anode Silo 17- Anode Silo 32	0.03 grain/dscf *
Anode Mixer Hoppers	AMH25-AMH48	0.03 grain/dscf *
Anode Slitters	AS5-AS8	0.03 grain/dscf *
Cathode Slitters	CS5-CS8	0.03 grain/dscf *
Stackers	S5_1 to S5_32	0.03 grain/dscf *
	S6_1 to S6_32	
	S7_1 to S7_25	

	S8_1 to S8_25	
LPW welding	LPW5-1 to LPW5-2	0.03 grain/dscf *
	LPW6-1 to LPW6-2	
	LPW7-1 to LPW7-2	
	LPW8-1 to LPW8-2	
CanCap welding	CanCap5-1 to CanCap5-2	0.03 grain/dscf *
	CanCap6-1 to CanCap6-2	
	CanCap7-1 to CanCap7-2	
	CanCap8-1 to CanCap8-2	
seal pin welding	SPW5-1 to SPW5-2	0.03 grain/dscf *
	SPW6-1 to SPW6-2	
	SPW7-1 to SPW7-2	
	SPW8-1 to SPW8-2	
Taping machines	TM9-TM16	0.03 grain/dscf *
Frame side welding	FSW5-FSW8	0.03 grain/dscf *
Busbar welding	BW5-BW8	0.03 grain/dscf *
Frame End Welding	FEW5-FEW8	0.03 grain/dscf*
Natural Gas-Fired Emergency Generators	Emgen11-Emgen20	0.03 grain/dscf *
Natural Gas-Fired Hot Water Heater	W-Heating4 to W-Heating6	0.03 grain/dscf *
Natural gas-fired space heaters	S-Heating61 to S-Heating-120	0.03 grain/dscf *
Diesel Fire Pump	F-pump-2	0.03 grain/dscf *
Natural Gas-Fired Boilers	Boiler3-Boiler4	0.01 grain/dscf*
cooling towers	CWT27-CWT30	0.03 grain/dscf *
Maintenance welding	Maintenance welding	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

Cathode coating process

C-coat1 - C-coat4

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
The cathode coating process is not subject to the requirements of 326 IAC 8-1-6 because it is regulated by other rules in 326 IAC 8. The cathode coating process is subject to the requirements of 326 IAC 8-2-4 (Coil Coating Operations).

326 IAC 8-2-4 (Coil Coating Operations)
The rolls of aluminum being coated are considered coil coating operations. Pursuant to 326 IAC 8-2-4, Starplus Energy LLC, shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from the each of the four coating lines, identified as C-coat1, C-coat2, C-coat3 and C-coat4.

Compliance with this limit is determined as follows:

(a) Pursuant to 326 IAC 8-1-2(b)(1), equivalency shall be determined by the following equation:

E = L / (1 - (L/D))

Where:

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.
L = Applicable emission limit in pounds of VOC per gallon of coating. 2.6 pounds of VOC per gallon less water [326 IAC 8-2-4]
D = Density of the VOC in the coating, as applied, in pounds per gallon of VOC.

A solvent density of 7.36 pounds of VOC per gallon shall be used to determine equivalent pounds of VOC per gallon of solids for the equivalent emission limit.

E = 2.6 / [1 - (2.6/7.36)] = 4.02 pounds per gallon of solids

(b) Pursuant to 326 IAC 8-1-2(c), the overall efficiency of the capture system and control device shall be no less than the equivalent calculated by the following equation:

O = (V - E) / V * 100

Where:
O = Equivalent overall efficiency of the capture system and control device as a percentage.

V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied. (80.0 lb VOC per gallon solids)
E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied (4.02 pounds of VOC per gallon of solids)

O = (80.0 - 4.02) / (80.0 x 100) = 95.0%

The source is required to achieve a VOC capture and control on each coating line using the Solvent recovery towers (SRT), to render 326 IAC 2-2 (PSD) not applicable. The source did not provide the actual VOC content of the coating in pounds of VOC per gallon of coating solids. Therefore, IDEM has used the worst-case coating content that equates to a minimum of 95% control efficiency of the capture system and control device. Compliance with this requirement ensures compliance with 326 IAC 8-2-4.

326 IAC 8-2-9 (Miscellaneous Metal Coating Operations)
This rule establishes emissions limits for processes engaged in coating metal parts. However, 326 IAC 8-2-9(b) states that surface coating operations subject to other sections of 326 IAC 8-2 are not subject to 326 IAC 8-2-9. The cathode coating process are subject to 326 IAC 8-2-4, therefore, 326 IAC 8-2-9 does not apply

C-coat5 - C-coat8

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
The cathode coating process is not subject to the requirements of 326 IAC 8-1-6 because it is regulated by other rules in 326 IAC 8. The cathode coating process is subject to the requirements of 326 IAC 8-2-4 (Coil Coating Operations).

326 IAC 8-2-4 (Coil Coating Operations)
The rolls of aluminum being coated are considered coil coating operations. Pursuant to 326 IAC 8-2-4, Starplus Energy LLC, shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from the each of the four coating lines, identified as C-coat5, C-coat6, C-coat7 and C-coat8.

Compliance with this limit is determined as follows:

(a) Pursuant to 326 IAC 8-1-2(b)(1), equivalency shall be determined by the following equation:

E = L / (1 - (L/D))

Where:

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.
L = Applicable emission limit in pounds of VOC per gallon of coating. 2.6 pounds of VOC per gallon less water [326 IAC 8-2-4]
D = Density of the VOC in the coating, as applied, in pounds per gallon of VOC.

A solvent density of 7.36 pounds of VOC per gallon shall be used to determine equivalent pounds of VOC per gallon of solids for the equivalent emission limit.

E = 2.6 / [1 - (2.6/7.36)] = 4.02 pounds per gallon of solids

(b) Pursuant to 326 IAC 8-1-2(c), the overall efficiency of the capture system and control device shall be no less than the equivalent calculated by the following equation:

O = (V - E) / V * 100

Where:
O = Equivalent overall efficiency of the capture system and control device as a percentage.

V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied. (80.0 lb VOC per gallon solids)
E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied (4.02 pounds of VOC per gallon of solids)

O = (80.0 - 4.02) / (80.0 x 100) = 95.0%

The source is required to achieve a VOC capture and control on each coating line using the Solvent recovery towers (SRT), to render 326 IAC 2-2 (PSD) not applicable. The source did not provide the actual VOC content of the coating in pounds of VOC per gallon of coating solids. Therefore, IDEM has used the worst-case coating content that equates to a minimum of 95% control efficiency of the capture system and control device. Compliance with this requirement ensures compliance with 326 IAC 8-2-4.

326 IAC 8-2-9 (Miscellaneous Metal Coating Operations)
This rule establishes emissions limits for processes engaged in coating metal parts. However, 326 IAC 8-2-9(b) states that surface coating operations subject to other sections of 326 IAC 8-2 are not subject to 326 IAC 8-2-9. The cathode coating process are subject to 326 IAC 8-2-4, therefore, 326 IAC 8-2-9 does not apply

Anode coating process

A-coat1 - A-Coat4

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
The anode coating process is not subject to the requirements of 326 IAC 8-1-6 because it is regulated by other rules in 326 IAC 8. The anode coating process is subject to the requirements of 326 IAC 8-2-4 (Coil Coating Operations).

326 IAC 8-2-4 (Coil Coating Operations)
The rolls of copper are being coated and are considered coil coating operations. Pursuant to 326 IAC 8-2-4, Starplus Energy LLC, shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from the each of the four coating lines, identified as A-coat1, A-coat2, A-coat3 and A-coat4.

Based on the MSDS submitted by the source and calculations made, the units A-coat1 - A-coat4 is able to comply with this requirement by using only as-applied compliant coatings.

326 IAC 8-2-9 (Miscellaneous Metal Coating Operations)
This rule establishes emissions limits for processes engaged in coating metal parts. However, 326 IAC 8-2-9(b) states that surface coating operations subject to other sections of 326 IAC 8-2 are not subject to

326 IAC 8-2-9. The cathode coating process are subject to 326 IAC 8-2-4, therefore, 326 IAC 8-2-9 does not apply

A-Coat5 - A-Coat8

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
The anode coating process is not subject to the requirements of 326 IAC 8-1-6 because it is regulated by other rules in 326 IAC 8. The anode coating process is subject to the requirements of 326 IAC 8-2-4 (Coil Coating Operations).

326 IAC 8-2-4 (Coil Coating Operations)
The rolls of copper are being coated and are considered coil coating operations. Pursuant to 326 IAC 8-2-4, Starplus Energy LLC, shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from the each of the four coating lines, identified as A-coat5, A-coat6, A-coat7 and A-coat8.

Based on the MSDS submitted by the source and calculations made, the units A-Coat5 - A-Coat8 is able to comply with this requirement by using only as-applied compliant coatings.

326 IAC 8-2-9 (Miscellaneous Metal Coating Operations)
This rule establishes emissions limits for processes engaged in coating metal parts. However, 326 IAC 8-2-9(b) states that surface coating operations subject to other sections of 326 IAC 8-2 are not subject to 326 IAC 8-2-9. The anode coating process are subject to 326 IAC 8-2-4, therefore, 326 IAC 8-2-9 does not apply.

Cathode raw material handling (Cline1 to Cline8)

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Even though, this cathode raw material handling was constructed after January 1, 1980, it is not subject to the requirements of 326 IAC 8-1-6 because its unlimited VOC potential emissions are less than twenty-five (25) tons per year per line.

Anode raw material handling (Aline1 to Aline8)

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Even though, this anode raw material handling was constructed after January 1, 1980, it is not subject to the requirements of 326 IAC 8-1-6 because its unlimited VOC potential emissions are less than twenty-five (25) tons per year per line.

Assembly General - Electrolyte Filling Process (EFM1-EFM64)

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Even though, this electrolyte filling process was constructed after January 1, 1980, it is not subject to the requirements of 326 IAC 8-1-6 because its unlimited VOC potential emissions are less than twenty-five (25) tons per year.

Formation - HVC Front Side Moving Device (HVC1-HVC8)

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Even though, this HVC front side moving device was constructed after January 1, 1980, it is not subject to the requirements of 326 IAC 8-1-6 because its unlimited VOC potential emissions are less than twenty-five (25) tons per year.

Module Test- Side Dispenser, HBB Dispenser ,PSA Dispensers and Curing stations

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Even though, this side dispenser, HBB dispensers ,PSA dispensers and Curing stations was constructed after January 1, 1980, it is not subject to the requirements of 326 IAC 8-1-6 because its unlimited VOC potential emissions are less than twenty-five (25) tons per year each.

Storage - Electrolyte Storage Tanks, Used/Recovered NMP Storage Tank

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Even though, thesse electrolyte storage tanks and used/recovered nmp storage tanks was constructed after January 1, 1980, it is not subject to the requirements of 326 IAC 8-1-6 because its unlimited VOC potential emissions are less than twenty-five (25) tons per year.

Diesel Storage Tanks (DST1 &DST2)

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)

The diesel storage tanks are not subject to the requirements of 326 IAC 8-1-6, because it has an unlimited VOC potential emission of less than twenty-five (25) tons per year.

326 IAC 8-4-3 (Petroleum Liquid Storage Facilities)

The diesel storage tank is not subject to the requirements of 326 IAC 8-4-3, because it has a storage capacity less than 39,000 gallons.

Emergency Generators and Fire Pumps

326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating)

The natural gas-fired emergency generators and diesel fire pump are not subject to the requirements of 326 IAC 6-2, because each emission unit is not a source of indirect heating.

326 IAC 7-1.1 (Sulfur Dioxide Emissions Limitations)

The natural gas-fired emergency generators and diesel fire pump are not subject to the requirements of 326 IAC 7-1.1-1, because each emission unit has unlimited SO_2 potential emissions of less than twenty-five (25) tons/year, and ten (10) pounds/hour.

326 IAC 8-1-6 (New Facilities: General Reduction Requirements)

The natural gas-fired emergency generators and diesel fire pump are not subject to the requirements of 326 IAC 8-1-6, because each emission unit has unlimited VOC potential emissions of less than twenty-five (25) tons per year.

Maintenance paintings

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

Pursuant to 326 IAC 6-3-2(d)(4), the rule does not apply as it uses less than 5 gallons of coating a day.

326 IAC 6.5 Particulate Matter Limitations Except Lake County
This source is not subject to the requirements of 326 IAC 6.5-1-2 as it is not applicable under 326 IAC 6.5-1-1(c) (5) as it uses less than 5 gallons of coating a day.

326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Even though, this Maintenance painting was constructed after January 1, 1980, it is not subject to the requirements of 326 IAC 8-1-6 because its unlimited VOC potential emissions are less than twenty-five (25) tons per year.

326 IAC 8-2-1 (VOC Rules: Surface Coating Emission Limitations)

Even though, this Maintenance painting was constructed after July 1, 1990, it is not subject to the requirements of 326 IAC 8-2-1 because its unlimited VOC potential emissions are less than Fifteen (15) pounds per day.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-7 are required to assure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions; however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

(a) The Compliance Determination Requirements applicable to this modification are as follows:

Testing Requirements:

Summary of Testing Requirements

Emission Unit	Control Device	Stack ID	Timeframe for Testing or Date of Initial Valid Demonstration)	Pollutant/ Parameter	Frequency of Testing	Authority
CLine1-Cline4	Bag Filters	01-PEF-03, 01-PEF-04 and 01-PEF-05	*180	PM, PM10, PM2.5, Cobalt, Nickel	Every 5 years*	326 IAC 2-2
CLine5-Cline8	Bag filters	02-PEF-03, 02-PEF-04 and 02-PEF-05	*180	PM, PM10, PM2.5 Cobalt, Nickel	Every 5 years*	326 IAC 2-2
ALine1-Aline4	Bag filters	01-PEF-01 and 01-PEF-02	*180	PM, PM10, PM2.5	Every 5 years*	326 IAC 2-2
ALine5-Aline8	Bag filters	02-PEF-01 and 02-PEF-02	*180	PM, PM10, PM2.5	Every 5 years*	326 IAC 2-2
C-coat1 to C-coat4	SRT-01 to SRT-04	SR-01 to SR-04	*180	VOC	Every 5 years*(1)	326 IAC 2-2 326 IAC 8-2-4
C-coat5 to C-coat8	SRT-05-8	SR-05 to SR-08	*180	VOC	Every 5 years*(2)	326 IAC 2-2 326 IAC 8-2-4

* No later than 180 days after startup of the emission unit.
(1) The source shall alternate testing between coating lines C-Coat1, C-Coat2, C-Coat-3 and C-coat4 such that testing on a Solvent Recovery tower shall not be repeated until SRT01, SRT02, SRT-03 and SRT04 have each been tested.
(2) The source shall alternate testing between coating lines C-Coat5, C-Coat6, C-Coat-7 andC-coat8 such that testing on a Solvent Recovery tower shall not be repeated until SRT05, SRT06, SRT-07 and SRT08 have each been tested.
SRT: Solvent Recovery Tower

(1) Testing of all the other emission units and control devices; other than the ones listed above, for PM, PM10 and PM2.5 and VOC is not required because either the control device(s) are not required to comply with any applicable requirements or IDEM OAQ has determined that testing of all the other emission units and control devices is not required at this time to determine

compliance with the PM emission limits (326 IAC 6.5-1-2). IDEM has the authority to require testing at a later time if necessary to demonstrate compliance with any applicable requirement.

(b) The Compliance Monitoring Requirements applicable to this proposed modification are as follows:

Control Device	Type of Parametric Monitoring	Frequency	Range or Specification
CBF1	Pressure Drop	Daily	Within normal range of 2 to 8 inches of water, unless a different upper or lower value is established in the most recent compliant stack test
CBF2			
CBF3			
CBF4			
CBF5			
CBF6			
CBF7			
CBF8			
CBF9			
CBF10			
CBF11			
CBF12			
CBF13			
CBF14			
CBF15			
CBF16			
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CBF41			
CBF42			
CBF43			
CBF44			
CBF45			
CBF46			
CBF47			
CBF48			
CBF49			
ABF1			
ABF2			
ABF3			
ABF4			
ABF5			

Control Device	Type of Parametric Monitoring	Frequency	Range or Specification
ABF6			
ABF7			
ABF8			
ABF9			
ABF10			
ABF11			
ABF12			
ABF13			
ABF14			
ABF15			
ABF16			
ABF17			
ABF18			
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ABF48			
ABF49			
ABF50			
ABF51			
ABF52			
ABF53			
SRT01-SRT08	Water Flow Rate	daily	Manufacturer Specifications
	3-hour average coolant exit temperature monitoring	Continuous	Manufacturer Specifications, at or below the value established in the most recent compliant stack test

Control Device	Type of Parametric Monitoring	Frequency	Range or Specification
	pressure drop across the fan	daily	Manufacturer Specifications
	Outlet VOC Concentration (ppm by volume as propane)	daily	Manufacturer Specifications

The high VOC input loading level (5,101.41 tons per year per system) along with the high control efficiency required of each integral solvent recovery system to assure that source remains in compliance with the 326 IAC 2-2 PSD minor limits is why IDEM is requiring the source to conduct daily Outlet VOC concentration checks along with monitoring water flow rate, 3-hour average coolant exit temperature and pressure drop across the fan.

These monitoring conditions are necessary because the above-mentioned control devices for the PM, PM10, PM2.5, VOC, and HAP control must operate properly to assure compliance with the 326 IAC 2-2 - PSD minor limits, 326 IAC 6.5-1-2 - PM Limitations Except Lake County, 326 IAC 8-2-4 - Coil Coating Operations, and 326 IAC 20 (HAP minor limits).

Proposed Changes

Refer to the attached document 47602tsdAppA or or 476282tsdAppA for the proposed changes.

Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on March 4, 2024. Additional information was received from April 11, 2024 to April 23, 2024.

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 067-47602-00093. The operation of this proposed modification shall be subject to the conditions of the attached proposed Significant Permit Modification No. 067-47628-00093.

The staff recommends to the Commissioner that the Part 70 Significant Source Modification and Significant Permit Modification be approved.

IDEM Contact

(a) If you have any questions regarding this permit, please contact Sidhant Paul, Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251, or by telephone at (317) -232-8219 or (800) 451-6027, and ask for Sidhant Paul or (317) 232-8219.

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Air Permits page on the Internet at: https://www.in.gov/idem/airpermit/public-participation/; and the Citizens' Guide to IDEM on the Internet at: https://www.in.gov/idem/resources/citizens-guide-to-idem/.

Total Emission Calculations

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Uncontrolled Potential to Emit (tons/yr)														
Plant Name	**PM**	**PM10**	**PM2.5**	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Methylene Diphenyl Diisocyante**	**Cobalt**	**Nickel**	**Hexane**	**Formaldehyde**	**Benzene**
Plant 1	426.61	420.81	410.57	1.23	58.65	64.02	70.07	72.95	0.03	24.75	47.25	0.40	0.29	0.02
Plant 2	415.11	414.39	410.54	1.23	58.65	64.02	70.07	72.95	0.03	24.75	47.25	0.40	0.29	0.02
Jaewon Plant 1	22.16	22.95	22.95	0.58	17.28	44.6	13.28	0.269						
Total Emissions	863.88	858.15	844.06	3.05	134.58	172.64	153.43	146.17	0.07	49.50	94.50	0.80	0.58	0.05
PSD Permit Threshold	250	250	250	250	250	250	250	25	10	10	10	10	10	10

Potential to Emit After Permit Issuance (tons/yr)														
Plant Name	**PM**	**PM10**	**PM2.5**	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Methylene Diphenyl Diisocyante**	**Cobalt**	**Nickel**	**Hexane**	**Formaldehyde**	**Benzene**
Plant 1	107.91	102.11	91.86	1.23	58.65	104.83	70.07	8.51	0.03	2.60	4.96	0.30	0.29	0.02
Plant 2	96.40	95.68	91.84	1.23	58.65	104.82	70.07	8.51	0.03	2.60	4.96	0.40	0.29	0.02
Jaewon Plant 1	6.83	7.62	7.62	0.58	17.28	16.33	13.28	0.27						
Total Emissions	211.14	205.41	191.32	3.05	134.58	225.99	153.43	17.29	0.07	5.20	9.92	0.70	0.57	0.05
PSD Permit Threshold	250	250	250	250	250	250	250	25	10	10	10	10	10	10

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
One Winter Street, Boston, MA 02108

Commissioner Directive: DEP-2026-0412 — Effective 01 Jul 2026
Regional Administrator: Cordelia Wint-Ashbourne, Southeast
Previous Commissioner: Rafael Ortiz-Mendoza (2019–2025)
DPW Div.: Solid Waste Management
DPW Bur.: Recycling & Composting
Municipal Liaison: Bridget Mercer

Massachusetts Protected & Short (exempt)

Municipality	Pop.	Households	Single-family	Multi-family	Mixed-use	Seasonal	Curbside collection	Drop-off only	Pay-as-you-throw	Contact
Abington	17,531	6,842	4,910	1,932	0	0	Yes	No	No	Public Works
Acton	24,118	9,310	6,205	3,105	0	0	Yes	No	No	Public Works
Acushnet	10,314	4,012	3,480	532	0	0	Yes	No	No	Public Works
Adams	8,288	3,540	2,610	930	0	0	Yes	No	No	Public Works
Agawam	28,144	11,205	8,760	2,445	0	0	Yes	No	No	Public Works
Alford	429	188	188	0	0	0	No	Yes	No	Town Hall
Amesbury	17,368	7,120	5,240	1,880	0	0	Yes	No	No	Public Works
Amherst	39,820	9,640	3,210	6,430	0	0	Yes	No	No	Public Works
Andover	36,853	14,210	10,980	3,230	0	0	Yes	No	No	Public Works
Arlington	46,308	19,540	9,120	10,420	0	0	Yes	No	No	Public Works
Ashburnham	6,081	2,510	2,210	300	0	0	Yes	No	No	Public Works
Ashby	3,287	1,240	1,180	60	0	0	No	Yes	No	Town Hall
Ashfield	1,737	760	760	0	0	0	No	Yes	No	Town Hall
Ashland	17,376	6,980	5,120	1,860	0	0	Yes	No	No	Public Works
Athol	11,451	4,870	3,940	930	0	0	Yes	No	No	Public Works
Attleboro	46,943	18,210	13,640	4,570	0	0	Yes	No	No	Public Works
Auburn	16,996	6,720	5,310	1,410	0	0	Yes	No	No	Public Works
Avon	4,805	1,930	1,610	320	0	0	Yes	No	No	Public Works
Ayer	8,427	3,360	2,540	820	0	0	Yes	No	No	Public Works
Barnstable	48,916	21,340	14,210	7,130	0	0	Yes	No	No	Public Works
Barre	5,120	2,040	1,980	60	0	0	No	Yes	No	Town Hall
Becket	1,847	820	820	0	0	0	No	Yes	No	Town Hall
Bedford	14,013	5,610	4,120	1,490	0	0	Yes	No	No	Public Works
Belchertown	15,413	6,120	5,340	780	0	0	Yes	No	No	Public Works
Bellingham	17,855	6,940	5,210	1,730	0	0	Yes	No	No	Public Works
Belmont	26,975	10,420	6,180	4,240	0	0	Yes	No	No	Public Works
Berkley	6,511	2,610	2,340	270	0	0	Yes	No	No	Public Works
Berlin	2,844	1,120	1,090	30	0	0	No	Yes	No	Town Hall
Bernardston	2,113	880	880	0	0	0	No	Yes	No	Town Hall
Beverly	42,119	17,260	11,840	5,420	0	0	Yes	No	No	Public Works
Billerica	43,887	16,980	12,410	4,570	0	0	Yes	No	No	Public Works
Blackstone	9,302	3,610	3,120	490	0	0	Yes	No	No	Public Works
Blandford	1,214	540	540	0	0	0	No	Yes	No	Town Hall
Bolton	5,928	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Boston	675,647	272,410	96,180	176,230	0	0	Yes	No	No	Public Works
Bourne	19,754	8,240	6,120	2,120	0	0	Yes	No	No	Public Works
Boxborough	5,130	1,980	1,940	40	0	0	No	Yes	No	Town Hall
Boxford	8,508	3,120	3,060	60	0	0	No	Yes	No	Town Hall
Boylston	4,897	1,870	1,810	60	0	0	No	Yes	No	Town Hall
Braintree	38,272	15,420	9,860	5,560	0	0	Yes	No	No	Public Works
Brewster	10,318	4,620	4,210	410	0	0	Yes	No	No	Public Works
Bridgewater	28,869	10,340	7,120	3,220	0	0	Yes	No	No	Public Works
Brimfield	3,766	1,520	1,520	0	0	0	No	Yes	No	Town Hall
Brockton	105,643	39,210	24,180	15,030	0	0	Yes	No	No	Public Works
Brookfield	3,509	1,420	1,380	40	0	0	No	Yes	No	Town Hall
Brookline	63,191	26,840	11,210	15,630	0	0	Yes	No	No	Public Works
Buckland	1,923	820	820	0	0	0	No	Yes	No	Town Hall
Burlington	26,942	10,180	7,240	2,940	0	0	Yes	No	No	Public Works
Cambridge	118,403	49,120	14,210	34,910	0	0	Yes	No	No	Public Works
Canton	24,741	9,420	6,810	2,610	0	0	Yes	No	No	Public Works
Carlisle	4,852	1,740	1,720	20	0	0	No	Yes	No	Town Hall
Carver	12,517	4,820	4,310	510	0	0	Yes	No	No	Public Works
Charlemont	1,258	560	560	0	0	0	No	Yes	No	Town Hall
Charlton	13,018	5,120	4,610	510	0	0	Yes	No	No	Public Works
Chatham	6,125	3,210	2,980	230	0	0	Yes	No	No	Public Works
Chelmsford	36,801	14,120	10,240	3,880	0	0	Yes	No	No	Public Works
Chelsea	39,880	14,210	4,120	10,090	0	0	Yes	No	No	Public Works
Cheshire	3,241	1,340	1,340	0	0	0	No	Yes	No	Town Hall
Chester	1,310	580	580	0	0	0	No	Yes	No	Town Hall
Chesterfield	1,222	540	540	0	0	0	No	Yes	No	Town Hall
Chicopee	54,653	21,340	14,210	7,130	0	0	Yes	No	No	Public Works
Chilmark	1,002	520	520	0	0	0	No	Yes	No	Town Hall
Clarksburg	1,707	760	760	0	0	0	No	Yes	No	Town Hall
Clinton	14,018	5,610	4,120	1,490	0	0	Yes	No	No	Public Works
Cohasset	7,542	2,980	2,940	40	0	0	No	Yes	No	Town Hall
Colrain	1,707	760	760	0	0	0	No	Yes	No	Town Hall
Concord	18,491	6,980	5,120	1,860	0	0	Yes	No	No	Public Works
Conway	1,830	820	820	0	0	0	No	Yes	No	Town Hall
Cummington	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Dalton	6,958	2,980	2,940	40	0	0	No	Yes	No	Town Hall
Danvers	28,712	11,120	8,240	2,880	0	0	Yes	No	No	Public Works
Dartmouth	34,032	13,210	9,840	3,370	0	0	Yes	No	No	Public Works
Dedham	25,784	10,240	6,120	4,120	0	0	Yes	No	No	Public Works
Deerfield	5,125	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Dennis	14,207	6,980	6,120	860	0	0	Yes	No	No	Public Works
Dighton	7,610	2,980	2,940	40	0	0	No	Yes	No	Town Hall
Douglas	8,964	3,480	3,120	360	0	0	Yes	No	No	Public Works
Dover	5,589	1,980	1,940	40	0	0	No	Yes	No	Town Hall
Dracut	32,784	12,610	9,120	3,490	0	0	Yes	No	No	Public Works
Dudley	11,829	4,610	4,120	490	0	0	Yes	No	No	Public Works
Dunstable	3,357	1,240	1,220	20	0	0	No	Yes	No	Town Hall
Duxbury	16,045	6,120	5,340	780	0	0	Yes	No	No	Public Works
East Bridgewater	14,675	5,610	4,120	1,490	0	0	Yes	No	No	Public Works
East Brookfield	2,109	880	880	0	0	0	No	Yes	No	Town Hall
East Longmeadow	15,720	6,120	5,340	780	0	0	Yes	No	No	Public Works
Eastham	5,752	2,980	2,940	40	0	0	No	Yes	No	Town Hall
Easthampton	16,310	6,980	5,120	1,860	0	0	Yes	No	No	Public Works
Easton	28,886	10,980	8,240	2,740	0	0	Yes	No	No	Public Works
Edgartown	4,412	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Egremont	1,208	540	540	0	0	0	No	Yes	No	Town Hall
Erving	1,429	620	620	0	0	0	No	Yes	No	Town Hall
Essex	3,404	1,340	1,340	0	0	0	No	Yes	No	Town Hall
Everett	49,275	17,980	6,120	11,860	0	0	Yes	No	No	Public Works
Fairhaven	16,268	6,610	5,120	1,490	0	0	Yes	No	No	Public Works
Fall River	94,548	35,120	21,340	13,780	0	0	Yes	No	No	Public Works
Falmouth	32,660	14,210	10,240	3,970	0	0	Yes	No	No	Public Works
Fitchburg	41,946	16,120	10,240	5,880	0	0	Yes	No	No	Public Works
Florida	703	320	320	0	0	0	No	Yes	No	Town Hall
Foxborough	18,609	6,980	5,120	1,860	0	0	Yes	No	No	Public Works
Framingham	72,362	28,210	14,210	14,000	0	0	Yes	No	No	Public Works
Franklin	34,756	13,210	9,840	3,370	0	0	Yes	No	No	Public Works
Freetown	9,892	3,610	3,120	490	0	0	Yes	No	No	Public Works
Gardner	20,228	8,120	6,240	1,880	0	0	Yes	No	No	Public Works
Gay Head	1,000	520	520	0	0	0	No	Yes	No	Town Hall
Georgetown	8,511	3,120	3,060	60	0	0	No	Yes	No	Town Hall
Gill	1,441	620	620	0	0	0	No	Yes	No	Town Hall
Gloucester	30,273	13,210	9,840	3,370	0	0	Yes	No	No	Public Works
Goshen	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Gosnold	75	40	40	0	0	0	No	Yes	No	Town Hall
Grafton	19,878	7,420	5,120	2,300	0	0	Yes	No	No	Public Works
Granby	6,240	2,610	2,340	270	0	0	Yes	No	No	Public Works
Granville	1,576	680	680	0	0	0	No	Yes	No	Town Hall
Great Barrington	7,104	3,120	3,060	60	0	0	No	Yes	No	Town Hall
Greenfield	17,456	7,120	5,240	1,880	0	0	Yes	No	No	Public Works
Groton	11,301	4,120	3,980	140	0	0	No	Yes	No	Town Hall
Groveland	6,517	2,610	2,340	270	0	0	Yes	No	No	Public Works
Hadley	5,250	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Halifax	7,545	2,980	2,940	40	0	0	No	Yes	No	Town Hall
Hamilton	8,493	3,120	3,060	60	0	0	No	Yes	No	Town Hall
Hampden	5,171	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Hancock	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Hanover	14,847	5,610	4,120	1,490	0	0	Yes	No	No	Public Works
Hanson	10,821	4,120	3,980	140	0	0	No	Yes	No	Town Hall
Hardwick	2,621	1,120	1,090	30	0	0	No	Yes	No	Town Hall
Harvard	6,520	2,610	2,340	270	0	0	Yes	No	No	Public Works
Harwich	12,243	5,610	4,120	1,490	0	0	Yes	No	No	Public Works
Hatfield	3,279	1,340	1,340	0	0	0	No	Yes	No	Town Hall
Haverhill	62,882	24,120	14,210	9,910	0	0	Yes	No	No	Public Works
Hawley	336	160	160	0	0	0	No	Yes	No	Town Hall
Heath	706	320	320	0	0	0	No	Yes	No	Town Hall
Hingham	23,308	9,120	6,240	2,880	0	0	Yes	No	No	Public Works
Hinsdale	2,004	880	880	0	0	0	No	Yes	No	Town Hall
Holbrook	11,140	4,120	3,980	140	0	0	No	Yes	No	Town Hall
Holden	19,346	7,420	5,120	2,300	0	0	Yes	No	No	Public Works
Holland	2,407	1,020	1,020	0	0	0	No	Yes	No	Town Hall
Holliston	14,906	5,610	4,120	1,490	0	0	Yes	No	No	Public Works
Holyoke	39,880	14,210	4,120	10,090	0	0	Yes	No	No	Public Works
Hopedale	6,356	2,610	2,340	270	0	0	Yes	No	No	Public Works
Hopkinton	18,164	6,980	5,120	1,860	0	0	Yes	No	No	Public Works
Hubbardston	4,382	1,740	1,720	20	0	0	No	Yes	No	Town Hall
Hudson	19,063	7,420	5,120	2,300	0	0	Yes	No	No	Public Works
Hull	10,304	4,120	3,980	140	0	0	No	Yes	No	Town Hall
Huntington	2,171	960	960	0	0	0	No	Yes	No	Town Hall
Ipswich	13,175	5,120	4,610	510	0	0	Yes	No	No	Public Works
Kingston	12,629	4,820	4,310	510	0	0	Yes	No	No	Public Works
Lakeville	10,602	4,120	3,980	140	0	0	No	Yes	No	Town Hall
Lancaster	8,356	3,240	3,120	120	0	0	No	Yes	No	Town Hall
Lanesborough	3,068	1,340	1,340	0	0	0	No	Yes	No	Town Hall
Lawrence	89,143	33,120	21,340	11,780	0	0	Yes	No	No	Public Works
Lee	5,830	2,610	2,340	270	0	0	Yes	No	No	Public Works
Leicester	11,527	4,610	4,120	490	0	0	Yes	No	No	Public Works
Lenox	5,077	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Leominster	43,782	16,980	12,410	4,570	0	0	Yes	No	No	Public Works
Leverett	1,849	820	820	0	0	0	No	Yes	No	Town Hall
Lexington	31,394	12,120	8,240	3,880	0	0	Yes	No	No	Public Works
Leyden	706	320	320	0	0	0	No	Yes	No	Town Hall
Lincoln	6,362	2,610	2,340	270	0	0	Yes	No	No	Public Works
Littleton	9,984	3,980	3,940	40	0	0	No	Yes	No	Town Hall
Longmeadow	15,720	6,120	5,340	780	0	0	Yes	No	No	Public Works
Lowell	115,554	43,120	21,340	21,780	0	0	Yes	No	No	Public Works
Ludlow	21,209	8,120	6,240	1,880	0	0	Yes	No	No	Public Works
Lunenburg	10,424	3,980	3,940	40	0	0	No	Yes	No	Town Hall
Lynn	101,253	38,120	21,340	16,780	0	0	Yes	No	No	Public Works
Lynnfield	12,627	4,820	4,310	510	0	0	Yes	No	No	Public Works
Malden	66,263	24,120	14,210	9,910	0	0	Yes	No	No	Public Works
Manchester	5,286	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Mansfield	23,184	8,980	6,120	2,860	0	0	Yes	No	No	Public Works
Marblehead	20,441	8,120	6,240	1,880	0	0	Yes	No	No	Public Works
Marion	5,164	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Marlborough	40,962	16,120	10,240	5,880	0	0	Yes	No	No	Public Works
Marshfield	25,132	9,980	6,120	3,860	0	0	Yes	No	No	Public Works
Mashpee	15,060	6,120	5,340	780	0	0	Yes	No	No	Public Works
Mattapoisett	6,045	2,610	2,340	270	0	0	Yes	No	No	Public Works
Maynard	10,433	4,120	3,980	140	0	0	No	Yes	No	Town Hall
Medfield	12,811	4,980	4,120	860	0	0	Yes	No	No	Public Works
Medford	59,659	23,120	14,210	8,910	0	0	Yes	No	No	Public Works
Medway	13,328	5,120	4,610	510	0	0	Yes	No	No	Public Works
Melrose	28,150	10,980	8,240	2,740	0	0	Yes	No	No	Public Works
Mendon	6,228	2,610	2,340	270	0	0	Yes	No	No	Public Works
Merrimac	6,504	2,610	2,340	270	0	0	Yes	No	No	Public Works
Methuen	53,396	20,120	14,210	5,910	0	0	Yes	No	No	Public Works
Middleborough	25,232	9,980	6,120	3,860	0	0	Yes	No	No	Public Works
Middlefield	506	240	240	0	0	0	No	Yes	No	Town Hall
Middleton	9,777	3,980	3,940	40	0	0	No	Yes	No	Town Hall
Milford	28,972	11,120	8,240	2,880	0	0	Yes	No	No	Public Works
Millbury	13,261	5,120	4,610	510	0	0	Yes	No	No	Public Works
Millis	8,288	3,120	3,060	60	0	0	No	Yes	No	Town Hall
Millville	3,149	1,240	1,220	20	0	0	No	Yes	No	Town Hall
Milton	28,401	10,980	8,240	2,740	0	0	Yes	No	No	Public Works
Monroe	121	60	60	0	0	0	No	Yes	No	Town Hall
Monson	8,660	3,480	3,120	360	0	0	Yes	No	No	Public Works
Montague	8,437	3,610	3,120	490	0	0	Yes	No	No	Public Works
Monterey	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Montgomery	694	320	320	0	0	0	No	Yes	No	Town Hall
Mount Washington	167	80	80	0	0	0	No	Yes	No	Town Hall
Nahant	3,410	1,340	1,340	0	0	0	No	Yes	No	Town Hall
Nantucket	14,255	6,120	5,340	780	0	0	Yes	No	No	Public Works
Natick	37,170	14,210	10,240	3,970	0	0	Yes	No	No	Public Works
Needham	32,091	12,120	8,240	3,880	0	0	Yes	No	No	Public Works
New Ashford	229	100	100	0	0	0	No	Yes	No	Town Hall
New Bedford	101,079	38,120	21,340	16,780	0	0	Yes	No	No	Public Works
New Braintree	1,000	440	440	0	0	0	No	Yes	No	Town Hall
New Marlborough	1,407	620	620	0	0	0	No	Yes	No	Town Hall
New Salem	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Newbury	6,948	2,980	2,940	40	0	0	No	Yes	No	Town Hall
Newburyport	18,289	7,120	5,240	1,880	0	0	Yes	No	No	Public Works
Newton	88,923	33,120	14,210	18,910	0	0	Yes	No	No	Public Works
Norfolk	11,227	4,120	3,980	140	0	0	No	Yes	No	Town Hall
North Adams	12,508	5,120	4,610	510	0	0	Yes	No	No	Public Works
North Andover	30,915	11,980	8,240	3,740	0	0	Yes	No	No	Public Works
North Attleborough	30,963	11,980	8,240	3,740	0	0	Yes	No	No	Public Works
North Brookfield	4,680	1,980	1,940	40	0	0	No	Yes	No	Town Hall
North Reading	15,811	5,980	4,120	1,860	0	0	Yes	No	No	Public Works
Northampton	28,549	11,120	6,240	4,880	0	0	Yes	No	No	Public Works
Northborough	15,555	5,980	4,120	1,860	0	0	Yes	No	No	Public Works
Northbridge	16,135	6,120	5,340	780	0	0	Yes	No	No	Public Works
Northfield	2,878	1,120	1,090	30	0	0	No	Yes	No	Town Hall
Norton	20,844	8,120	6,240	1,880	0	0	Yes	No	No	Public Works
Norwell	10,506	4,120	3,980	140	0	0	No	Yes	No	Town Hall
Norwood	30,963	11,980	8,240	3,740	0	0	Yes	No	No	Public Works
Oak Bluffs	4,527	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Oakham	1,847	820	820	0	0	0	No	Yes	No	Town Hall
Orange	7,844	3,120	3,060	60	0	0	No	Yes	No	Town Hall
Orleans	6,128	3,210	2,980	230	0	0	Yes	No	No	Public Works
Otis	1,707	760	760	0	0	0	No	Yes	No	Town Hall
Oxford	13,852	5,120	4,610	510	0	0	Yes	No	No	Public Works
Palmer	12,140	4,820	4,310	510	0	0	Yes	No	No	Public Works
Paxton	4,806	1,980	1,940	40	0	0	No	Yes	No	Town Hall
Peabody	52,251	19,980	12,410	7,570	0	0	Yes	No	No	Public Works
Pelham	1,353	620	620	0	0	0	No	Yes	No	Town Hall
Pembroke	20,336	7,980	6,120	1,860	0	0	Yes	No	No	Public Works
Pepperell	11,604	4,610	4,120	490	0	0	Yes	No	No	Public Works
Peru	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Petersham	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Phillipston	1,707	760	760	0	0	0	No	Yes	No	Town Hall
Pittsfield	43,377	17,120	10,240	6,880	0	0	Yes	No	No	Public Works
Plainfield	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Plainville	8,264	3,120	3,060	60	0	0	No	Yes	No	Town Hall
Plymouth	61,217	23,120	14,210	8,910	0	0	Yes	No	No	Public Works
Plympton	2,998	1,120	1,090	30	0	0	No	Yes	No	Town Hall
Princeton	3,407	1,340	1,340	0	0	0	No	Yes	No	Town Hall
Provincetown	2,942	1,520	1,520	0	0	0	No	Yes	No	Town Hall
Quincy	101,636	38,120	21,340	16,780	0	0	Yes	No	No	Public Works
Randolph	32,112	12,120	8,240	3,880	0	0	Yes	No	No	Public Works
Raynham	13,177	5,120	4,610	510	0	0	Yes	No	No	Public Works
Reading	25,124	9,980	6,120	3,860	0	0	Yes	No	No	Public Works
Rehoboth	12,897	4,980	4,120	860	0	0	Yes	No	No	Public Works
Revere	62,186	23,120	14,210	8,910	0	0	Yes	No	No	Public Works
Richmond	1,707	760	760	0	0	0	No	Yes	No	Town Hall
Rochester	5,232	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Rockland	17,528	6,980	5,120	1,860	0	0	Yes	No	No	Public Works
Rockport	6,952	2,980	2,940	40	0	0	No	Yes	No	Town Hall
Rowe	353	160	160	0	0	0	No	Yes	No	Town Hall
Rowley	6,629	2,610	2,340	270	0	0	Yes	No	No	Public Works
Royalston	1,707	760	760	0	0	0	No	Yes	No	Town Hall
Russell	1,707	760	760	0	0	0	No	Yes	No	Town Hall
Rutland	9,287	3,980	3,940	40	0	0	No	Yes	No	Town Hall
Salem	43,340	17,120	10,240	6,880	0	0	Yes	No	No	Public Works
Salisbury	8,484	3,120	3,060	60	0	0	No	Yes	No	Town Hall
Sandisfield	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Sandwich	20,675	8,120	6,240	1,880	0	0	Yes	No	No	Public Works
Saugus	28,150	10,980	8,240	2,740	0	0	Yes	No	No	Public Works
Savoy	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Scituate	18,133	6,980	5,120	1,860	0	0	Yes	No	No	Public Works
Seekonk	14,227	5,610	4,120	1,490	0	0	Yes	No	No	Public Works
Sharon	18,182	6,980	5,120	1,860	0	0	Yes	No	No	Public Works
Sheffield	3,237	1,340	1,340	0	0	0	No	Yes	No	Town Hall
Shelburne	3,707	1,520	1,520	0	0	0	No	Yes	No	Town Hall
Sherborn	4,119	1,740	1,720	20	0	0	No	Yes	No	Town Hall
Shirley	7,211	2,980	2,940	40	0	0	No	Yes	No	Town Hall
Shrewsbury	38,120	14,210	10,240	3,970	0	0	Yes	No	No	Public Works
Shutesbury	1,707	760	760	0	0	0	No	Yes	No	Town Hall
Somerset	11,804	4,610	4,120	490	0	0	Yes	No	No	Public Works
Somerville	81,045	32,120	14,210	17,910	0	0	Yes	No	No	Public Works
South Hadley	17,196	6,980	5,120	1,860	0	0	Yes	No	No	Public Works
Southampton	5,989	2,610	2,340	270	0	0	Yes	No	No	Public Works
Southborough	9,767	3,980	3,940	40	0	0	No	Yes	No	Town Hall
Southbridge	17,816	7,120	5,240	1,880	0	0	Yes	No	No	Public Works
Southwick	9,502	3,980	3,940	40	0	0	No	Yes	No	Town Hall
Spencer	11,688	4,610	4,120	490	0	0	Yes	No	No	Public Works
Springfield	155,929	58,120	21,340	36,780	0	0	Yes	No	No	Public Works
Sterling	8,108	3,240	3,120	120	0	0	No	Yes	No	Town Hall
Stockbridge	2,184	960	960	0	0	0	No	Yes	No	Town Hall
Stoneham	22,453	8,980	6,120	2,860	0	0	Yes	No	No	Public Works
Stoughton	30,963	11,980	8,240	3,740	0	0	Yes	No	No	Public Works
Stow	7,100	2,980	2,940	40	0	0	No	Yes	No	Town Hall
Sturbridge	9,511	3,980	3,940	40	0	0	No	Yes	No	Town Hall
Sudbury	18,931	6,980	5,120	1,860	0	0	Yes	No	No	Public Works
Sunderland	3,707	1,520	1,520	0	0	0	No	Yes	No	Town Hall
Sutton	9,287	3,980	3,940	40	0	0	No	Yes	No	Town Hall
Swampscott	13,852	5,120	4,610	510	0	0	Yes	No	No	Public Works
Swansea	15,811	5,980	4,120	1,860	0	0	Yes	No	No	Public Works
Taunton	56,574	21,340	14,210	7,130	0	0	Yes	No	No	Public Works
Templeton	8,287	3,480	3,120	360	0	0	Yes	No	No	Public Works
Tewksbury	31,394	12,120	8,240	3,880	0	0	Yes	No	No	Public Works
Tisbury	4,527	2,180	2,140	40	0	0	No	Yes	No	Town Hall
Tolland	1,707	760	760	0	0	0	No	Yes	No	Town Hall
Topsfield	6,509	2,610	2,340	270	0	0	Yes	No	No	Public Works
Townsend	9,287	3,980	3,940	40	0	0	No	Yes	No	Town Hall
Truro	2,003	1,020	1,020	0	0	0	No	Yes	No	Town Hall
Tyngsborough	11,868	4,610	4,120	490	0	0	Yes	No	No	Public Works
Tyringham	1,000	440	440	0	0	0	No	Yes	No	Town Hall
Upton	7,542	2,980	2,940	40	0	0	No	Yes	No	Town Hall
Uxbridge	13,261	5,120	4,610	510	0	0	Yes	No	No	Public Works
Wakefield	26,975	10,420	6,180	4,240	0	0	Yes	No	No	Public Works
Wales	1,707	760	760	0	0	0	No	Yes	No	Town Hall
Walpole	25,132	9,980	6,120	3,860	0	0	Yes	No	No	Public Works
Waltham	65,218	25,120	14,210	10,910	0	0	Yes	No	No	Public Works
Ware	9,707	3

Appendix A: Emission Calculations
PTE Summary

Company Name: StarPlus Energy LLC
Source Address: 2724 N St E. Kokomo, Indiana
Permit Number: 067-45646-00003
SSM No. 067-47602-00094
SPM No. 067-47628-00005
Reviewer: Sidhant Paul

Uncontrolled Potential to Emit (tons/yr)

Emissions Unit	PM	PM10	PM2.5*	SO_2	NOx	VOC	CO	Total HAPs**	Methylene Diphenyl Diisocyanate	Cobalt	Nickel	Hexane	Formaldehyde	Benzene
AnodeMix	153.31	153.31	153.31	-	-	6.33	-	0.00	0.00	0.00	0.00			
CMC Booth (#1-4)	0.34	0.34	0.34											
Anode Conductive Powder Booth (#1-4)														
CMC Silo (#1-4)	0.34	0.34	0.34											
Anode Conductive Powder Silo (#1-8)														
CMC Mixer (#1-12)	0.34	0.34	0.34											
CMC Storage Tank (#1-24)	0.00	0.00	0.00											
PD Mixer (#1-24)	38.33	38.33	38.33			0.33								
Anode Inlet (#1-16)	37.98	37.98	37.98											
Anode Silo (#1-16)	73.97	73.97	73.97											
Anode Mixer Hopper (#1-24)														
Binder Tank (#1-48)	0.00													
Coater Buffer Tank (#1-10)	0.00													
AnodeCoatDrying	9.00	9.00	9.00	-	-	6.82	-	0.00	0.00	0.00	0.00			
Anode Coater/Dryer (#1-4)						6.82								
CathodeMix	227.63	227.63	227.63	-	-	6.9856	-	72.00	0.00	24.75	47.25			
Binder Booths (#1-4)	0.63	0.63	0.63			-								
Binder Silos (#1-8)	0.63	0.63	0.63			-								
Binder Mixer (#1-8)	0.63	0.63	0.63			3.40								
Binder Storage Tank (#1-16)	-	-	-			3.38								
Cathode Inlet (#1-14)	56.25	56.25	56.25					24.00		8.25	15.75			
Cathode Silo (#1-14)	112.50	112.50	112.50					48.00		16.5	31.50			
Cathode Mixer Hopper (#1-14)														
NMP Supply Tank (#1-4)	-	-	-			6.97E-03								
HD Mixers (#1-14)	57.00	57.00	57.00			1.74E-01								
RMR Buffer Tanks (#1-14)	-	-	-			1.06E-02								
Slurry Storage Tank (#1-28)	-	-	-			1.06E-02								
Coater Buffer Tank (#1-5)	-	-	-			1.06E-02								
CathodeCoat	0.00	0.00	0.00			49.81	-							
C-Coat1 to C-Coat4						49.81								
Slitting	1.59	1.59	1.59	-	-	-	-							
Anode Slitting (#S1-AS4)	1.31	1.31	1.31											
Cathode Coating (#S1-CS4)	0.28	0.28	0.28											
Electrode Total	392.52	392.52	392.52	0.00	0.00	54.94	0.00	72.00		24.75	47.25			
Assembly General	23.67	23.67	23.67	0.00	0.00	1.82		0.03	0.03			0.00	0.00	0.00
Assembly General						1.65		0.03	0.03					
Stacking (S1_1 to S4_2S)	1.97	1.97	1.97											
LPW (LPW1-1 to LPW4-2)	21.82	21.82	21.82											
CAN-CAP WELDING (CanCap1-1 to CanCap4-2)	0.282	0.282	0.282											
ELECTROLYTE FILLING (EFM1-EFM32)						0.22								
Formation	0.38	0.38	0.38	0.00	0.00	2.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HOT FINTAP (HOT1-HOT2)						2.61								
SEALING (SPW1-1 to SPW4-2)	8.37E-06	8.37E-06	8.37E-06											
Tapes (TM-1 to TM-8)	0.3816	0.3816	0.3816											
Module Test	0.9092	0.81	0.81	-	-	1.26	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SD1- SD2, HBB1- HBB4, PSA1-PSA8 & CU01-CU08						1.26		0.00	0.00					
FSW1-4, BW1-4 and FEW1-4	0.81	0.81	0.81											
Packing	-	-	-	-	-	1.26	-	-	-	-	-	-	-	-
Packing						1.26								
Storage	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EST-1						0.26								
USED NMP Storage						0.008								
HSK-1						0.003								
R&D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Innovation						0.00								
Utilities	0.77	3.10	3.09	1.23	50.65	1.82	70.07	0.85	0.00	0.00	0.00	0.40	0.29	0.02
Boilers (2)	0.29	0.82	0.82	0.06	10.74	0.59	9.02	0.203			2.20E-04	1.93E-01	8.60E-03	2.25E-04
Hot Water Heater (NU-Heating1)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.22E-04	1.04E-01	4.30E-03	1.12E-04
Space Heating (60)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.22E-04	0.00E+00	0.00E+00	0.00E+00
Emergency Generators (10)	0.13	1.28	1.28	0.01	29.38	0.39	49.88	0.427					2.73E-01	2.10E-02
FirePump	0.22	0.12	0.12	1.09	8.93	0.19	1.84	0.003					1.71E-04	1.68E-03
Diesel Storage Tank (DST-1)						0.002								
Maintenance	18.46	10.33	0.09			0.24	0.00	0.06						
Welding	0.01	0.01	0.01	-	-	-	-	6.50E-04						
Paint Booth	0.04	0.04	0.04	-	-	0.04	-	0.06						
Cooling towers	18.41	10.28	0.04											
Total Excluding Fugitives	426.40	420.91	419.57	1.23	50.65	64.02	70.07	72.95	0.03	24.75	47.25	0.40	0.29	0.02
Fugitive Emissions														
Paved Roads	21.55	4.31	1.06											
Total Fugitives	21.55	4.31	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

*Cathode Coating PTE is after Internal Solvent recovery towers

Source-Wide Total HAPs: 72.95 | 24.75 | 47.25 | Major Source for HAPS before controls

Limited Potential to Emit After Issuance (tons/yr)

Emissions Unit	PM	PM10	PM2.5*	SO_2	NOx	VOC	CO	Total HAPs**	Methylene Diphenyl Diisocyanate	Cobalt	Nickel	Hexane	Formaldehyde	Benzene
AnodeMix	39.33	39.33	39.33	-	-	6.33	-	0.00	0.00	0.00	0.00	-	-	-
CMC Booth (#1-4)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
Anode Conductive Powder Booth (#1-4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMC Silo (#1-4)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
Anode Conductive Powder Silo (#1-8)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CMC Mixer (#1-12)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
CMC Storage Tank (#1-24)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-
PD Mixer (#1-24)	9.58	9.58	9.58	-	-	0.33	-	-	-	-	-	-	-	-
Anode Inlet (#1-16)	9.50	9.50	9.50	-	-	-	-	-	-	-	-	-	-	-
Anode Silo (#1-16)	18.50	18.50	18.50	-	-	-	-	-	-	-	-	-	-	-
Anode Mixer Hopper (#1-24)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Binder Tank (#1-48)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-
Coater Buffer Tank (#1-10)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-
AnodeCoatDrying	-	-	-	-	-	6.82	-	0.00	0.00	0.00	0.00			
Anode Coater/Dryer (#1-4)						6.82								
CathodeMix	23.90	23.90	23.90	-	-	6.29	-	7.56	0.00	2.60	4.96			
Binder Booths (#1-4)	0.07	0.07	0.07			-		n.m		n.m	n.m			
Binder Silos (#1-8)	0.07	0.07	0.07			-		n.m		n.m	n.m			
Binder Mixer (#1-8)	0.07	0.07	0.07			3.40		n.m		n.m	n.m			
Binder Storage Tank (#1-16)	0.00	0.00	0.00			3.38		0.00		0.00	0.00			
Cathode Inlet (#1-14)	5.91	5.91	5.91			-		2.52		0.87	1.65			
Cathode Silo (#1-14)	11.81	11.81	11.81			-		4.04		1.73	3.31			
Cathode Mixer Hopper (#1-14)														
NMP Supply Tank (#1-4)	-	-	-			0.01		0.00		0.00	0.00			
HD Mixers (#1-14)	5.99	5.99	5.99			0.17		0.00		0.00	0.00			
RMR Buffer Tanks (#1-14)	0.00	0.00	0.00			0.01		0.00		0.00	0.00			
Slurry Storage Tank (#1-28)	0.00	0.00	0.00			0.01		0.00		0.00	0.00			
Coater Buffer Tank (#1-5)	0.00	0.00	0.00			0.01		0.00		0.00	0.00			
CathodeCoat	0.00	0.00	0.00			51.63								
C-Coat1 to C-Coat4 & SRT-01 to SRT-04						51.63								
Slitting	1.59	1.59	1.59	-	-	-	-							
Anode Slitting (AS1-AS4)	1.31	1.31	1.31	-	-	-	-							
Cathode Coating (CS1-CS4)	0.28	0.28	0.28	-	-	-	-							
Electrode Total	63.82	63.82	63.82	0.00	0.00	65.75	0.00	7.56		2.60	4.96			
Assembly General	23.67	23.67	23.67	0.00	0.00	1.82		0.03	0.03			0.00	0.00	0.00
Assembly General	-	-	-	-	-	1.65	-	0.03	0.03	-	-	-	-	-
Stacking (S1_1 to S4_2S)	1.97	1.97	1.97	0.00	0.00	0.00	0.00	n.m	n.m					
LPW (LPW1-1 to LPW4-2)	21.82	21.82	21.82	0.00	0.00	0.00	0.00	n.m	n.m					
CAN-CAP WELDING (CanCap1-1 to CanCap4-2)	0.28	0.28	0.28	0.00	0.00	0.00	0.00	n.m	n.m					
ELECTROLYTE FILLING (EFM1-EFM32)	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00					
Formation	0.3816	0.3816	0.3816	-	-	2.61	-	0.00						
HOT FINTAP (HOT1-HOT2)	-	-	-	-	-	2.61	-							
SEALING (SPW1-1 to SPW4-2)	8.37E-06	8.37E-06	8.37E-06	-	-	-	-							
Tapes (TM-1 to TM-8)	0.3816	0.3816	0.3816	-	-	-	-							
Module Test	0.9092	0.81	0.81	-	-	1.26	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SD1- SD4, HBB1- HBB4, PSA1-PSA8 & CU01-CU08	-	-	-	-	-	1.26	-	0.00	0.00					
FSW1-4, BW1-4 and FEW1-4	0.81	0.81	0.81											
Packing	-	-	-	-	-	1.26	-	-	-	-	-	-	-	-
Packing	-	-	-	-	-	1.26	-							
Storage	-	-	-	-	-	0.27	-	-						
EST-1	-	-	-	-	-	0.26								
USED NMP Storage	-	-	-	-	-	0.008								
HSK-1	-	-	-	-	-	0.003								
R&D	-	-	-	-	-	0.00	-	-						
Innovation						0.00								
Utilities	0.77	3.10	3.09	1.23	50.65	1.82	70.07	0.85	0.00	0.00	4.60E-04	0.30	0.29	0.02
Boilers (2)	0.29	0.82	0.82	0.06	10.74	0.59	9.02	0.203			2.20E-04	1.93E-01	8.60E-03	2.25E-04
Hot Water Heater	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.22E-04	1.04E-01	4.30E-03	1.12E-04
Space Heating (60)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.22E-04	0.00E+00	0.00E+00	0.00E+00
Emergency Generators (10)	0.13	1.28	1.28	0.01	29.38	0.39	49.88	0.427					2.73E-01	2.10E-02
FirePump	0.22	0.12	0.12	1.09	8.93	0.19	1.84	0.003					1.71E-04	1.68E-03
Diesel Storage Tank (DST-1)						0.002								
Maintenance	18.46	10.33	0.09			0.24	0.00	0.06						
Welding	0.01	0.01	0.01	-	-	-	-	6.50E-04						
Paint Booth	0.04	0.04	0.04	-	-	0.04	-	0.06						
Cooling towers	18.41	10.28	0.04											
Total Excluding Fugitives	107.30	102.11	91.98	1.23	50.65	104.83	70.07	8.51	0.03	2.6	4.96	0.30	0.29	0.02
Fugitive Emissions														
Paved Roads	21.55	4.31	1.06											
Total Fugitives	21.55	4.31	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

*PM2.5 listed is direct PM2.5

Source-Wide Total HAPs: 8.51 | 2.60 | 4.96 | Major Source for HAPS before controls

**Fugitive HAP emissions are always included in the source-wide emissions

PTE of AnodeMix, CathodeMix, and cathode coating are after limits

Appendix A: Emission Calculations
PTE Summary Plant 2

Company Name: StarPlus Energy LLC
Source Address: 2724 N SR E, Kokomo, Indiana
Permit Number: 067-45646-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Uncontrolled Potential to Emit (tons/yr)

Emissions Unit	PM	PM10	PM2.5*	SO_2	NOx	VOC	CO	Total HAPs**	Methylene Diphenyl Diisocyanate	Cobalt	Nickel	Hexane	Formaldehyde	Benzene
Anodelite	163.31	163.31	163.31			0.33		0.00	0.00	0.00	0.00			
CMC Booth (#5)	0.34	0.34	0.34											
Anode Conductive Powder Booth (#5A)														
CMC Silo (#13-24)	0.34	0.34	0.34											
CMC Mixer (#13-24)	0.34	0.34	0.34											
Anode Conductive Powder Silo (#6-16)														
Anode Silo (#17-32)	75.97	75.97	75.97											
Anode Mixer Hopper (#PLM)														
Storage Tank (#69-92)														
Cooler Buffer Tank (#1-20)														
Anode Cast/Drying	0.00	0.00	0.00	-	-	6.82	-	0.00	0.00	0.00	0.00			
Anode Caster/Dryer (#5-8)						6.82								
Cathodelite	227.63	227.63	227.63	-	-	0.0052	-	72.00	0.00	24.75	47.25			
Binder Booths (#5-8)	0.63	0.63	0.63											
Binder Silos (#5-16)	0.63	0.63	0.63											
Binder Mixer (#5-16)	0.63	0.63	0.63			1.45								
Binder Storage Tank (#13-32)						3.38								
Cathode Inlet (#15-28)	96.25	96.25	96.25					24.00		8.25	15.75			
Cathode Silo (#15-28)	112.50	112.50	112.50					48.00		16.5	31.5			
Cathode Mixer Hopper (#PLM)														
MAP Supply Tank (#5-8)	-	-	-			6.97E-03								
HD Mixers (#15-28)	97.00	97.00	97.00			1.74E-01								
RAM Buffer Tanks (#1A-28)						1.04E-01								
Slurry Storage Tank (#69-96)						1.06E-03								
Cooler Buffer Tank (#5-16)						1.06E-03								
Cathode Coat	0.00	0.00	0.00	-	-	40.81	-							
C-Coat® to C-Coat® & SRT-05 to SRT-08						40.81								
Slitting	1.59	1.59	1.59											
Anode Slitting (ASS-ASB)	1.21	1.21	1.21											
Cathode Slitting (ASS-ASB)	0.39	0.39	0.39											
Electrolyte Total	393.53	393.53	393.53	0.00	0.00	54.94	0.00	72.00	0.00	24.75	47.25	0.00	0.00	0.00
Assembly	23.67	23.67	23.67	0.00	0.00	1.92		0.93	0.93	0.00	0.00	0.00	0.00	0.00
Assembly General						1.89		0.93	0.93					
Stainless (SS_1 to SS_29)	1.57	1.57	1.57											
ENV (ENV1-1 to ENV4-7)	21.97	21.97	21.97											
CAN-CAP WELDING (CanCap1-1 to CanCap8-2)	0.282	0.282	0.282											
ELECTROLYTE FILLING (EFM25-EFM61)						0.22								
Formation	0.3016	0.3016	0.3016	0.0000	0.0000	2.6063	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
H/C FRONT (H/CF1-H/CF36)						2.61								
SEALING (SPW1-1 to SPW9-2)	0.0000	0.0000	0.0000											
Testing (TM-6 to TM-18)	0.3016	0.3016	0.3016											
Module Test	0.91	0.91	0.91	0.00	0.00	1.26		0.00	0.00	0.00	0.00	0.00	0.00	0.00
SDS- SDB HBS- HBB FSAS-FSAV6 & CUS6-CUS16						1.26		0.00	0.0035					
FSW5-8 & SW5-8 FEW5-8	0.91	0.91	0.91											
Packing						1.26								
Packing						1.26			0.0035625					
Storage						0.27	-	-						
EST-2						0.26								
LEST-MAP Storage						0.008								
USB-2						0.003								
R&D						0.00	-	-						
Innovation						0.00								
Utilities	0.77	3.10	3.09	1.23	58.40	1.92	70.07	0.85	0.00	0.00	4.69E-04	4.42E-01	2.93E-01	2.32E-02
Boilers (Boiler1-4)	0.30	0.83	0.83	0.06	10.14	0.15	8.07	0.301			1.79E-04	1.69E-01	8.05E-03	1.79E-04
Hot Water Heater (W-Heater2)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.29E-04	1.04E-01	4.35E-03	1.29E-04
Space Heating (S-Heater01-120)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.29E-04	1.04E-01	4.35E-03	1.29E-04
Emergency Generator (Emergen1-3,5)	0.15	1.39	1.39	0.01	29.56	0.39	45.45	0.277					2.73E-04	2.95E-03
FirePump (F-Pump-2)	0.22	0.12	0.12	1.09	6.93	0.19	1.84	0.053					1.77E-04	1.68E-03
Diesel Storage Tank (DST-2)						0.00E+00								
Maintenance	0.56	1.00	0.06			0.04	0.03	0.06						
Welding	0.01	0.01	0.01					5.70E-04						
Paint Booth	0.04	0.04	0.04	-	-	0.04	-	0.06						
Cooling towers	0.50	0.95	0.01											
Total Excluding Fugitives	95.40	95.68	91.04	1.23	58.6	164.8	70.1	0.51	0.93	2.6	4.96	0.48	0.29	0.02
Fugitive Emissions														
Cloud Roads	21.35	4.21	1.05											
Total Fugitives	21.35	4.21	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

*Cathode Coating PTE is after Integral Solvent recovery towers
** PM10 listed is direct PM2.5
***Fugitive HAP emissions are always included in the source-wide emissions

Source-Wide Total HAPs: 72.95 | 24.75 | 47.25 | Major Source for HAPS before controls

Limited Potential to Emit After Issuance (tons/yr)

Emissions Unit	PM	PM10	PM2.5*	SO_2	NOx	VOC	CO	Total HAPs**	Methylene Diphenyl Diisocyanate	Cobalt	Nickel	Hexane	Formaldehyde	Benzene
Anodelite	38.33	38.33	38.33	-	-	0.33	-	0.00	0.00	0.00	0.00			
CMC Booth (#5-8)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
Anode Conductive Powder Booth (#5-8)				-	-	-	-	-	-	-	-	-	-	-
CMC Silo (#13-24)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
CMC Mixer (#13-24)	0.09	0.09	0.09	-	-	-	-	-	-	-	-	-	-	-
CMC Hopper (#PLM)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PPI Mixer (#PLM)	0.34	0.34	0.34	-	-	n/a	-	-	-	-	-	-	-	-
Anode Inlet (#17-32)	0.32	0.32	0.32	-	-	-	-	-	-	-	-	-	-	-
Anode Silo (#17-32)	15.93	15.93	15.93	-	-	-	-	-	-	-	-	-	-	-
Anode Mixer Hopper (#PLM)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage Tank (#69-92)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cooler Buffer Tank (#1-20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anode Cast/Drying	-	-	-	-	-	6.82	-	0.00	0.00	0.00	0.00			
Anode Caster/Dryer (#5-8)	-	-	-	-	-	6.82								
Cathodelite	23.59	23.59	23.59	-	-	0.99	-	7.56	0.93	2.60	4.96			
Binder Booths (#5-8)	0.07	0.07	0.07	-	-	-	-	-	-	-	-			
Binder Silos (#5-16)	0.07	0.07	0.07	-	-	1.45	-	-						
Binder Mixer (#5-16)	0.07	0.07	0.07	-	-	3.38	-	-						
Binder Storage Tank (#17-32)				-	-		-	-						
Cathode Inlet (#15-28)	5.91	5.91	5.91	-	-	-	-	2.52		0.87	1.65			
Cathode Silo (#15-28)	11.81	11.81	11.81	-	-	-	-	5.04		1.73	3.31			
Cathode Mixer Hopper (#PLM)				-	-	-	-	-		-	-			
MAP Supply Tank (#5-8)	-	-	-	-	-	-	-	-		-	-			
HD Mixers (#15-28)	5.99	5.99	5.99	-	-	0.17	-	-		-	-			
RAM Buffer Tanks (#1A-28)	-	-	-	-	-	n/a	-	-		-	-			
Slurry Storage Tank (#69-96)	-	-	-	-	-	n/a	-	-		-	-			
Cooler Buffer Tank (#5-16)	-	-	-	-	-	0.01	-	-		-	-			
Cathode Coat	-	-	-	-	-	81.62	-							
C-Coat® to C-Coat® & SRT-05 to SRT-08	-	-	-	-	-	81.62	-							
Slitting	1.59	1.59	1.59	-	-	-	-							
Anode Slitting (#5-8)	1.21	1.21	1.21	-	-	-	-							
Cathode Slitting (#5-8)	0.39	0.39	0.39											
Electrolyte Total	63.52	63.52	63.52	0.00	0.00	90.74	0.00	7.56		2.60	4.96			
Assembly General	23.67	23.67	23.67	0.00	0.00	1.92		0.93	0.93			0.00	0.00	0.00
Assembly General	-	-	-	-	-	1.89		0.93	0.93					
Stainless (SS_1 to SS_29)	1.57	1.57	1.57	-	-	-	-							
ENV (ENV1-1 to ENV4-7)	21.97	21.97	21.97	-	-	-	-							
CAN-CAP WELDING (CanCap1-1 to CanCap8-2)	0.282	0.282	0.282	-	-	-	-							
ELECTROLYTE FILLING (EFM25-EFM61)	-	-	-	-	-	0.22	-							
Formation	0.3016	0.3016	0.3016	-	-	2.60	-	0.00						
H/C FRONT (H/CF1-H/CF36)	-	-	-	-	-	2.61	-							
SEALING (SPW1-1 to SPW9-2)	0.0000	0.0000	0.0000	-	-	-	-							
Testing (TM-6 to TM-18)	0.3016	0.3016	0.3016	-	-	-	-							
Module Test	0.91	0.91	0.91	0.00	0.00	1.26		0.00	0.00	0.00	0.00	0.00	0.00	0.00
SDS- SDB HBS- HBB FSAS-FSAV6 & CUS6-CUS16	-	-	-	-	-	1.26	-	0.00	0.00					
FSW5-8 & SW5-8 FEW5-8	0.91	0.91	0.91	-	-	-	-	-	-	-	-	-	-	-
Packing	-	-	-	-	-	1.26	-	-	-	-	-	-	-	-
Packing	-	-	-	-	-	1.26	-	-						
Storage	-	-	-	-	-	0.27	-	-						
EST-2	-	-	-	-	-	n/a	-	-						
LEST-MAP Storage	-	-	-	-	-	n/a	-	-						
USB-2	-	-	-	-	-	0.003	-	-						
R&D	-	-	-	-	-	0.00	-	-						
Innovation						0.00								
Utilities	0.77	3.10	3.09	1.23	58.40	1.92	70.07	0.85	0.00E+00	0.00E+00	4.69E-04	4.42E-01	2.93E-01	2.32E-02
Boilers (Boiler1-4)	0.30	0.83	0.83	0.06	10.14	0.15	8.07	0.301			1.79E-04	1.69E-01	8.05E-03	1.79E-04
Hot Water Heater (W-Heater2)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.29E-04	1.04E-01	4.35E-03	1.29E-04
Space Heating (S-Heater01-120)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109			1.29E-04	1.04E-01	4.35E-03	1.29E-04
Emergency Generator (Emergen1-3,5)	0.15	1.39	1.39	0.01	29.56	0.39	45.45	0.277					2.73E-04	2.95E-03
FirePump (F-Pump-2)	0.22	0.12	0.12	1.09	6.93	0.19	1.84	0.053					1.77E-04	1.68E-03
Diesel Storage Tank (DST-2)	-	-	-	-	-	0.00E+00	-	-						
Maintenance	0.56	1.00	0.06			0.04	0.03	0.06						
Welding	0.01	0.01	0.01					5.70E-04						
Paint Booth	0.04	0.04	0.04	-	-	0.04	-	0.06						
Cooling towers	0.50	0.95	0.01											
Total Excluding Fugitives	95.40	95.68	91.04	1.23	58.6	164.8	70.1	0.51	0.93	2.6	4.96	0.48	0.29	0.02
Fugitive Emissions														
Cloud Roads	21.35	4.21	1.05											
Total Fugitives	21.35	4.21	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

*PM10 listed is direct PM2.5
**Fugitive HAP emissions are always included in the source-wide emissions
PTE of Anodelite, Cathodelite, and cathode coating are after limits

Source-Wide Total HAPs: 0.51 | 2.60 | 4.96 | Major Source for HAPS before controls

Appendix A: Emission Calculations
PTE Summary Plant 2

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Uncontrolled Potential to Emit (tons/yr)														
Emissions Unit	**PM**	**PM10**	**PM2.5 ***	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs****	**Cobalt**	**Nickel**	**Hexane**	**Formaldehyde**	**Benzene**	**Methylene Diphenyl Diisocyante**
CMC Booth (#5-8) & Anode Conductive Powder Booth (#5-8)	0.34	0.34	0.34											
CMC Silo (#5-8) & Anode Conductive Powder Silo (#9-16)	0.34	0.34	0.34											
CMC Mixer (#13-24)	0.34	0.34	0.34											
CMC Storage Tank (#25-48)														
PD Mixer (#25-48)	38.33	38.33	38.33			0.33								
Anode Inlet (#17-32)	37.98	37.98	37.98											
Anode Silo (#17-32) & Anode Mixer Hopper (#25-48)	75.97	75.97	75.97											
Storage Tank (#49-96)														
Coater Buffer Tank (#11-20)														
Binder Booths (#5-8)	0.63	0.63	0.63					-						
Binder Silos (#9-16)	0.63	0.63	0.63					-						
Binder Mixer (#9-16)	0.63	0.63	0.63			3.40		-						
Binder Storage Tank (#17-32)	-	-	-			3.38		-						
Cathode Inlet (#15-28)	56.25	56.25	56.25					24.00	8.25	15.75				
Cathode Silo (#15-28) & Cathode Mixer Hopper (#15-28)	112.50	112.50	112.50					48.00	16.5	31.5				
NMP Supply Tank (#5-8)	-	-	-			6.97E-03								
HD Mixers (#15-28)	57.00	57.00	57.00			1.74E-01								
EMR Buffer Tanks (#15-28)						1.06E-02								
Slurry Storage Tank (#29-56)						1.06E-02								
Coater Buffer Tank (#6-10)						1.06E-02								
Anode Coater/Dryer (#5-8)						6.82								
C-Coat5 to C-Coat8 & SRT-05 to SRT-08						40.81								
Anode Slitting (AS5-AS8)	1.21	1.21	1.21											
Cathode Slitting (AS5-AS8)	0.39	0.39	0.39											
Assembly General						1.60		0.03						0.03
Stacking (S5_1 to S8_25)	1.57	1.57	1.57											
LPW (LPW5-1 to LPW8-2)	21.82	21.82	21.82											
CAN-CAP WELDING (CanCap5-1 to CanCap8-2)	0.282	0.282	0.282											
ELECTROLYTE FILLING (EFM33-EFM64)						0.22	-							
HVC FRONT (HVC5-HVC8)						2.61	-							
SEALING (SPW5-1 to SPW8-2)	8.37E-06	8.37E-06	8.37E-06											
Taping (TM-8 to TM-16)	0.3816	0.3816	0.3816											
SD5- SD8, HB5- HBB8, PSA9-PSA16 & CUS9-CUS16						1.26		0.00						0.0033
FSW5-8 & BW5-8, FEW5-8	0.81	0.81	0.81											
Packing						1.26								0.0033
EST-2						0.26								
USED NMP Storage						0.008								
USB-2						0.003								
Innovation						0.00								
Boilers (Boiler3-4)	0.20	0.82	0.82	0.06	10.74	0.59	9.02	0.203		2.25E-04	1.93E-01	8.05E-03	2.25E-04	
Hot Water Heater (W-Heating2)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109		1.22E-04	1.04E-01	4.35E-03	1.22E-04	
Space Heating (S-Heating61-120)	0.11	0.44	0.44	0.03	5.80	0.32	4.87	0.109		1.22E-04	1.04E-01	4.35E-03	1.22E-04	
Emergency Generators (Emgen11-20)	0.13	1.28	1.28	0.01	29.39	0.39	49.48	0.427				2.73E-01	2.10E-02	
FirePump (F-Pump-2)	0.22	0.12	0.12	1.09	6.93	0.19	1.84	0.003				1.71E-04	1.68E-03	
Diesel Storage Tank (DST-2)						2.37E-03								
Welding	0.01	0.01	0.01					6.50E-04						
Paint Booth	0.04	0.04	0.04			0.04		0.06						
Cooling towers (CWT27-CWT30)	6.90	3.86	0.01											
FEW1-FEW4	0.36	0.36	0.36											
Boilers (1-2)	0.20	0.82	0.82	0.06	10.74	0.59	9.02	0.20		0.00	0.19	0.00	0.00	
Total PTE Before Controls of the New Emission Units:	415.67	414.39	410.54	1.23	58.65	64.02	70.07	72.95	24.75	47.25	0.40	0.29	0.02	0.04

	PTE Increases Due to the Modification (ton/year)									
	PM	**PM_{10}**	**$PM_{2.5}$***	**SO_2**	**NO_X**	**VOC**	**CO**	**Total HAPs**	**Cobalt**	**Nickel**
Total PTE Before Controls of the New Emission Units	415.67	414.39	410.54	1.23	58.65	64.02	70.07	72.95	24.75	47.25
Total PTE Increase of the Modified Emission Unit(s)/Process	22.91	22.91	22.91	0	0	0.19	0	0	0	0
Total PTE of the Modification	**438.58**	**437.30**	**433.45**	**1.23**	**58.65**	**64.22**	**70.07**	**72.95**	**24.75**	**47.25**

*$PM_{2.5}$ listed is direct $PM_{2.5}$.
**Single highest HAP.

Appendix A: Emission Calculations
Modification Summary Plant 1

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Proccess/ Emission Unit		PM	PM10	PM2.5 *	SO_2	NOx	VOC	CO	Total HAPs	Cobalt	Nickel
CMC Booth (#1-4) & Anode Conductive Powder Booth (#1-4)	Before Modification	19.792	19.792	19.792							
	After Modification	0.344	0.344	0.344							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
CMC Silo (#1-4) & Anode Conductive Powder Silo (#1-8)	Before Modification	19.792	19.792	19.792							
	After Modification	0.344	0.344	0.344							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
CMC Mixer (#1-12)	Before Modification	3.125	3.125	3.125							
	After Modification	0.344	0.344	0.344							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
CMC Storage Tank (#1-24)	Before Modification	0.000	0.000	0.000							
	After Modification	0.000	0.000	0.000							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
PD Mixer (#1-24)	Before Modification	394.792	394.792	394.792			2.807				
	After Modification	38.326	38.326	38.326			0.326				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Anode Inlet (#1-16)	Before Modification	375.000	375.000	375.000							
	After Modification	37.983	37.983	37.983							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Anode Silo (#1-16) & Anode Mixer Hopper (#1-24)	Before Modification	750.000	750.000	750.000							
	After Modification	75.965	75.965	75.965							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Storage Tank (#1-48)	Before Modification	0.000	0.000	0.000							
	After Modification	0.000	0.000	0.000							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Coater Buffer Tank (#1-10)	Before Modification	0.000	0.000	0.000							
	After Modification	0.000	0.000	0.000							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Booths (#1-4)	Before Modification	5.625	5.625	5.625							
	After Modification	0.625	0.625	0.625							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Silos (#1-8)	Before Modification	5.625	5.625	5.625							
	After Modification	0.625	0.625	0.625							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Mixer (#1-8)	Before Modification	5.625	5.625	5.625			3.397				
	After Modification	0.625	0.625	0.625			3.397				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Binder Storage Tank (#1-16)	Before Modification						3.374				
	After Modification	0.000	0.000	0.000			3.374				
	PTE Increase	-	-	-	-	-	-	-			
Cathode Inlet (#1-14)	Before Modification	226.875	226.875	226.875					96.000	33.000	63.000
	After Modification	56.250	56.250	56.250					24.000	8.250	15.750
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Cathode Silo (#1-14) & Cathode Mixer Hopper (#1-14)	Before Modification	453.750	453.750	453.750					192.000	66.000	126.000
	After Modification	112.500	112.500	112.500					48.000	16.500	31.500
	PTE Increase	-	-	-	-	-	-	-	-	-	-
HD Mixers (#1-14)	Before Modification	232.500	232.500	232.500			0.011				
	After Modification	57.000	57.000	57.000			0.174				
	PTE Increase	-	0	0	0	0	0.163	0	0	0	0
EMR Buffer Tanks (#1-14)	Before Modification	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
	After Modification	0.000	0.000	0.000	0.000	0.000	0.011	0.000			
	PTE Increase	-	-	-	-	-	0.011	-			
Slurry Storage Tank (#1-28)	Before Modification	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
	After Modification						0.011				
	PTE Increase	-	-	-	-	-	0.011	-			
Coater Buffer Tank (#1-5)	Before Modification	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
	After Modification						0.011				
	PTE Increase	-	-	-	-	-	0.011	-	-	-	-
A-coat1 to A-coat4	Before Modification						55.824				
	After Modification						6.815				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
C-coat1 to C-coat4	Before Modification						180.500				
	After Modification						40.811				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Anode Slitting (AS1-AS4)	Before Modification	1.206	1.206	1.206							
	After Modification	1.21	1.21	1.21							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Cathode Coating (CS1-CS4)	Before Modification	0.388	0.388	0.388							
	After Modification	0.388	0.388	0.388							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Assembly General	Before Modification						6.898		3.00E-01		
	After Modification						1.602		3.00E-02		
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Stacking (S1_1 to S4_25)	Before Modification	1.595	1.595	1.595							
	After Modification	1.567	1.567	1.567							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
LPW (LPW1-1 to LPW4-2)	Before Modification	0.015	0.015	0.015							
	After Modification	21.820	21.820	21.820							
	PTE Increase	21.805	21.805	21.805							
CAN-CAP WELDING (CanCap1-1 to CanCap4-2)	Before Modification	0.004	0.004	0.004							
	After Modification	0.282	0.282	0.282							
	PTE Increase	0.278	0.278	0.278							
ELECTROLYTE FILLING (EFM1-EFM32)	Before Modification						0.443				
	After Modification						0.222				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
HVC FRONT (HVC1-HVC4)	Before Modification						5.210				
	After Modification						2.606				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
SEALING (SPW1-1 to SPW4-2)	Before Modification	4.68E-04	4.68E-04	4.68E-04							
	After Modification	8.37E-06	8.37E-06	8.37E-06							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Taping (TM-1 to TM-8)	Before Modification	0.089	0.089	0.089							
	After Modification	0.382	0.382	0.382							
	PTE Increase	0.293	0.293	0.293	-	-	-	-	-	-	-
SD1- SD4, HBB1- HBB4, PSA1-PSA8 & CUS1-CUS8	Before Modification						5.052		1.63E-02		
	After Modification						1.260		3.26E-03		
	PTE Increase	-	-	-	-	-	-	-	-	-	-
FSW1-4 , BW1-4	Before Modification	0.007	0.007	0.007							
	After Modification	0.543	0.543	0.543							
	PTE Increase	0.535	0.535	0.535	-	-	-	-	-	-	
Packing	Before Modification						5.052				
	After Modification						1.260				
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Cooling towers (CWT1-CWT26)	Before Modification	73.643	73.643	73.643							
	After Modification	18.411	10.281	0.039							
	PTE Increase	-	-	-	-	-	-	-	-	-	-
Hot Water Heater	Before Modification	0.122	0.490	0.490	0.039	6.441	0.354	5.411	0.122		
	After Modification	0.110	0.441	0.441	0.035	5.797	0.319	4.870	0.109		
	PTE Increase	-	-	-	-	-	-	-	-	-	-
		22.911	22.911	22.911	0.000	0.000	0.195	0.000	0.000	0.000	0.000

Appendix A: Emission Calculations
CATHODEMIX plant 1

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID CATHODEMIX
Cline 1-4

MATERIALS SPECIFICATION AND THROUGHPUT

Material Name[1]	Process	Physical Characteristics						Process Information			Notes		
		Density	Molecular Weight	VP	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.			
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F			
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	0	0	86	Included in the Cathode-Dryer-NMP shee	0	
Nickel Cobalt Aluminium Oxide (NCA)	Cathode Mixing, Cathode coating	38.66	244.15	0.00	0.00	0.00%	100.00%	2,327,797	45,000	86	Refer to cell F17 of 'Throughput Basis'	0	
PVDF (Poly Vinylene Fluoride)	Cathode Mixing, Cathode coating	14.54	64.03	517.30	0.00	0.00%	100.00%	68,770	500	86	Refer to cell F19 of Throughput Basis	0	
LCNT - Binder Solution for Cathode Mix (TDS-L)	Binder Solution (Cathode)	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450	86	Removed as not entered in China sheet	9810000	4905
Oxalic Acid Cathode Additive	HD mixer (Additive)	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25	0	Removed as not entered in China sheet	0	
NMP (N-Methyl-2-Pyrrolidone)	Cathode mixing & coating	8.62	99.13	0.00	8.62	100.00%	0.00%	0	0	104	Refer to cell F28 on Throughput Basis.	0	

[1]This is the list of utilized materials is based on comparable facilities ibased on the Samsung-SDI Hungary Planti. 3,672,316
4,873,587.98

VOC AND HAP EMISSIONS

	CATHODE MIX TANKS							VOC Emissions[2], Uncontrolled				ACT Control Efficiency[3]	VOC Emissions[2], Controlled			
	Tank Types	Contents	Capacity (gal)	Combined Throughput (gal)[4]	Quantity	Tank Throughput (gal)	EF Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr	%	tank lb/yr	lb/hr	lb/yr	ton/yr
X	Binder Mixer Tanks	NMP & PVDF	528	15,009,515	8	1,876,189	TankESP	849.17	0.78	6,793.36	3.40		254.75	0.23	2,038.01	1.02
X	Binder Storage Tanks	NMP & PVDF	528	15,009,515	16	938,095	TankESP	421.77	0.77	6,748.27	3.37		126.53	0.23	2,024.48	1.01
X	Coater Buffer Tanks	Cathode Slurry	528	22,014,621	4	5,503,655	TankESP	5.32	2.43 E-03	21.27	1.06E-02		1.60	7.28 E-04	6.38	3.19 E-03
X	Diesel Tanks	Diesel	500	372,000	1	372,000	TankESP	4.74	5.41 E-04	4.74	2.37 E-03		1.42	1.62 E-04	1.42	7.11 E-04
X	EMF Buffer Tanks	Cathode Slurry	528	22,014,621	14	1,572,473	TankESP	1.52	2.43 E-03	21.24	1.06E-02		0.46	7.28 E-04	6.37	3.19 E-03
X	HD Mixer Tanks	NMP, PVDF, Oxalic Acid, Binder Soln, NCA (Cathode Slurry)	634	22,014,621	14	1,572,473	TankESP	24.79	0.04	347.09	0.17	70%	7.44	0.01	104.13	0.05
X	Used NMP Tanks	Used NMP	7,925	14,361,805	2	7,180,903	TankESP	7.58	1.73 E-03	15.16	7.58 E-03		2.27	5.19 E-04	4.55	2.27 E-03
X	NMP Storage Tanks (ST1 and ST2)	Raw NMP	5,283	14,361,805	2	7,180,903	TankESP	6.97	1.59 E-03	13.95	6.97 E-03		2.09	4.78 E-04	4.18	2.09 E-03
	Slurry Storage Tank	Cathode Slurry	528	22,014,621	28	786,236	TankESP	0.76	2.43 E-03	21.24	1.06E-02		0.23	7.28 E-04	6.37	3.19 E-03
	Total for all Units			**147,173,123**	**89**	**26,196,690**		**1,322.62**	**1.60**	**13,986.33**	**6.99**		**396.78**	**0.48**	**4,195.90**	**2.10**

[2]Tank VOC emissions calculated using Breeze TankESP software. 17.22148092
[3]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).

[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

TankESP Throughput: Data Source:

PARTICULATE EMISSIONS

CATHODE MIXING				Particulate Emissions, Uncontrolled			BF Control Efficiency	Particulate Emissions, Controlled			Nickel Emissions, Uncontrolled			Nickel Emissions, Controlled			Cobalt Emissions, Uncontrolled			Cobalt Emissions, Controlled		
Powder Material Used in Cathode Mixing	Total Annual Throughput (tons)	EF Basis	PM Emission Factor	lb/hr	lb/yr	ton/yr	%	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr
Nickel Cobalt Aluminium Oxide (NCA)	45,000	Similar Facility	0.5%	51.37	450,000.00	225.00	98%	1.03	9,000.00	4.50	10.79	94,500.00	47.25	0.22	1,890.00	0.95	5.65	49,500.00	24.75	0.11	990.00	0.50
PVDF (Poly Vinylene Fluoride)	500	Similar Facility	0.5%	0.57	5,000.00	2.50		0.01	100.00	0.05	--	--	--	--	--	--	--	--	--	--	--	--
Oxalic Acid Cathode Additive	25		0.5%	0.03	250.00	0.13		5.71 E-04	5.00	2.50 E-03	--	--	--	--	--	--	--	--	--	--	--	--
Total				**51.94**	**455,000.00**	**227.63**		1.04	**9,100.00**	**4.55**	**10.79**	**94,500.00**	**47.25**	**0.22**	**1,890.00**	**0.95**	**5.65**	**49,500.00**	**24.75**	**0.11**	**990.00**	**0.50**

[7]Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%.
[8]LG Energy Solution Michigan, Inc.: 1 LG Way, Holland, Allegan County, Michigan. PTI Application for LIB Production Phase II. November 10, 2021

Unlimited PTE

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#1-4)	0.63	0.63	0.63					01-PEF-03-05
Binder Silos (#1-8)	0.63	0.63	0.63					
Binder Mixer (#1-8)	0.63	0.63	0.63	3.40				
Binder Storage Tank (#1-16)				3.37				
Cathode Inlet (#1-14)	56.25	56.25	56.25		24.00	8.25	15.75	
Cathode Silo (#1-14) & Cathode Mixer Hopper (#1-14)	112.50	112.50	112.50		48.00	16.5	31.50	
HD Mixers (#1-14)	57.00	57.00	57.00	1.74E-01				
EMF Buffer Tanks (#1-14)				1.06E-02				
Slurry Storage Tank (#1-28)				1.06E-02				
Coater Buffer Tank (#1-4)				1.06E-02				
NMP Supply Tank (#ST1-ST2)				5.97E-03				
Total	227.63	227.63	227.63	6.98	72.00	24.75	47.25	

Controlled

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#1-4)	0.01	0.01	0.01	-	-			01-PEF-03-05
Binder Silos (#1-8)	0.01	0.01	0.01	-	-			
Binder Mixer (#1-8)	0.01	0.01	0.01	1.02	-			
Binder Storage Tank (#1-16)		-	-	1.01	-			
Cathode Inlet (#1-14)	1.13	1.13	1.13	0.00	0.48	0.17	0.32	
Cathode Silo (#1-14) & Cathode Mixer Hopper (#1-14)	2.25	2.25	2.25	0.00	0.96	0.33	0.63	
HD Mixers (#1-14)	1.14	1.14	1.14	0.05	-	-	-	
	-	-	-	0.00	-	-	-	
Slurry Storage Tank (#1-28)	-	-	-	0.00	-	-	-	
Coater Buffer Tank (#1-4)	-	-	-	0.00	-	-	-	
NMP Supply Tank (#ST1-ST2)	-	-	-	0.00	-	-	-	
Total (TPY)	4.55	4.55	4.55	2.09	1.44	0.50	0.95	
Total (lbs/hr)	1.04	1.04	1.04		0.33	0.11	0.22	

CE 0.895

limited

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#1-4)	0.07	0.07	0.07	0.00	0.00	0.00	0.00	01-PEF-03-05
Binder Silos (#1-8)	0.07	0.07	0.07	0.00	0.00	0.00	0.00	
Binder Mixer (#1-8)	0.07	0.07	0.07	3.40	0.00	0.00	0.00	
Binder Storage Tank (#1-16)	0.00	0.00	0.00	3.37	0.00	0.00	0.00	
Cathode Inlet (#1-14)	5.91	5.91	5.91	0.00	2.52	0.866	1.654	
Cathode Silo (#1-14) & Cathode Mixer Hopper (#1-14)	11.81	11.81	11.81	0.00	5.04	1.73	3.31	
HD Mixers (#1-14)	5.99	5.99	5.99	0.17	0.00	0.00	0.00	
0	0.00	0.00	0.00	0.01	0.00	0.00	0.00	
Slurry Storage Tank (#1-28)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	
Coater Buffer Tank (#1-4)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	
NMP Supply Tank (#ST1-ST2)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	
Total (TPY)	23.90	23.90	23.90		7.56	2.60	4.96	
Total (lbs/hr)	5.46	5.46	5.46		1.73	0.59	1.13	

Appendix A: Emission Calculations
ANODEMIX Plant 1

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ANODEMIX
Aline1-4

MATERIALS SPECIFICATION AND THROUGHPUT

Material Name	Physical Characteristics						Process Information		
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Max Volume Used	Annual Usage	Process Temp.
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F
MICELLCMC GB-S01 (CMC-2500)	13.29	240.21	0.00	0.00	0.00%	100.00%	41,369	275	86
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	16.62	12.01	0.00	0.00	0.00%	100.00%	3,656,866	30,386	86
Styrene Butadiene Rubber (SBR) - HCM-815)	8.40	158.24	0.00	0.041	0.49%	48.00%	15,893	67	86

[1]This is the list based on the latest information provided by Samsung SDI on 4/28/2023.

VOC AND HAP EMISSIONS

ANODE MIX TANKS							VOC Emissions[4], Uncontrolled			
Tank Types	Contents	Capacity (gal)	Total Throughput (tpy)[6]	Quantity	Tank Throughput (tons/yr/tank)	EF Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr
PD Mixer (24)	VOC = SBR	608	67	24	3	Mass Balance	27	7.44E-02	652	3.26E-01
Total for all Units		**608**	**67**	**24**	**3**		**27**	**0**	**652**	**3.26E-01**

[2]VOC emissions calculated throughput times emission factor.
[3]Water is assumed to have no VOC emissions
[4]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]
[5]Based on MTI formula estimate that SBR is 2.25% of the total volume of slurry.
VOC content for SBR based on SDS from Euclid chemical dated 05.2021

PARTICULATE EMISSIONS

ANODE MIXING				Particulate Emissions, Uncontrolled			Bagfilter Control Efficiency[7]	Particulate Emissions, Controlled		
Powder Material Used in Anode Mixing	Total Annual Throughput (tons)	Emission Calculation Basis[8]	PM Emission Factor[8]	lb/hr	lb/yr	ton/yr	%	lb/hr	lb/yr	ton/yr
MICELLCMC GB-S01 (CMC-2500)	275	Similar Facility	0.5%	0.31	2,750	1	98.00%	6.28 E-03	55.00	0.0
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	30,386	Similar Facility	0.5%	34.69	303,860	152		0.69	6,077.20	3.0
Total				**35.00**	**306,610**	**153.305**		**0.70**	**6,132.20**	**3.1**

[7]Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%.
[8]LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021

	Unlimited PTE					Controlled PTE				
Proccess/ Emission Unit	PM	PM10	PM2.5 *	VOC	Stack	PM	PM10	PM2.5 *	VOC	Stack
CMC Booth (#1-4) & Anode Conductive Powder Booth (#1-4)	0.344	0.344	0.344			0.007	0.007	0.007		
CMC Silo (#1-4) & Anode Conductive Powder Silo (#1-8)	0.344	0.344	0.344			0.007	0.007	0.007		
CMC Mixer (#1-12)	0.344	0.344	0.344			0.007	0.007	0.007		
CMC Storage Tank (#1-24)	0.000	0.000	0.000			0.000				
PD Mixer (#1-24)	38.326	38.326	38.326	0.326	01-PEF-01-02	0.767	0.767	0.767	0.326	01-PEF-01-02
Anode Inlet (#1-16)	37.983	37.983	37.983			0.760				
Anode Silo (#1-16) & Anode Mixer Hopper (#1-24)	75.965	75.965	75.965			1.519	1.519	1.519		
Storage Tank (#1-48)										
Coater Buffer Tank (#1-8)										
Total (TPY)	153.31	153.31	153.31	0.33						

CE: 0.75

	Limited PTE				
Proccess/ Emission Unit	PM	PM10	PM2.5 *	VOC	Stack
CMC Booth (#1-4) & Anode Conductive Powder Booth (#1-4)	0.086	0.086	0.086		
CMC Silo (#1-4) & Anode Conductive Powder Silo (#1-8)	0.086	0.086	0.086		
CMC Mixer (#1-12)	0.086	0.086	0.086		
CMC Storage Tank (#1-24)	0.000				
PD Mixer (#1-24)	9.582	9.582	9.582	0.326	01-PEF-01-02
Anode Inlet (#1-16)	9.496	9.496	9.496		
Anode Silo (#1-16) & Anode Mixer Hopper (#1-24)	18.991	18.991	18.991		
Storage Tank (#1-48)	0.000				
Coater Buffer Tank (#1-10)	0.000				

Total (TPY)	38.326	38.326	38.326
Total (lb/hr)	8.750285388	8.750285388	8.750285388

Appendix A: Emission Calculations

USEDNMP STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

VOC Emissions

Used/Recovered NMP Storage Tank (ST3-ST4)
Criteria Pollutant Emission Rates

Material Name[1]	Process	Physical Characteristics						Process Information			VOC Emissions		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Recovered NMP[4]		Process Temp.	Uncontrolled Emissions	Control Efficiency[2]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year
NMP (N-Methyl-2-Pyrrolidone), Recovered	Used/Recovered NMP Storage	8.62	99.13 g/mol	0.32 hPa (20 °C)	8.62	100%	0%	3,590,451	15,469	95.00	See Tank VOC Emissions in Table Below		
											Total for All Products (lb/year):		
											Total for All Products (lb/hour):		
											Total for All Products (ton/year):		

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).

Used/Recovered NMP Storage Tank							VOC Emissions, Uncontrolled				ACT Control Efficiency[3]	VOC Emissions, Controlled			
Tank Types	Contents	Capacity (gal)	Maximum Annual Throughput[4] (gal)	Quantity	Maximum Throughput per Tank (gal)	Emission Calculation Basis	lb/yr/tank[3]	lb/hr	lb/yr	ton/yr	%	lb/yr/tank[3]	lb/hr	lb/yr	ton/yr
Used/Recovered NMP Storage Tank (ST3	Recovered NMP	7,925	3,590,451	2	1,795,226	TankESP	15.16	3.46 E-03	15.16	7.58 E-03	70%	4.55	1.04 E-03	9.10	4.55 E-03

[2]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).

[3]Tank VOC emissions calculated using BREEZE TanksESP

[4]The maximum annual recovered NMP amount is 99% of the total annual NMP usage for the facility

Appendix A: Emission Calculations
ANODECOAT-DRYING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ANODECOAT/DRYING
Criteria Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]		
		Density	Molecular Weight	VP	VOC As Used / As Applied		Solids	Max Annual Throughput		Process Temp.	Uncontrolled Emissions		Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year		lb/year
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	Anode Coat/Drying	16.62	12.01	0.00	0.00	0.00%	100.00%	0	0.00	86	0.00		0.00
Styrene Butadiene Rubber (SBR) - HCM-815)	Anode Coat/Drying	8.40	158.24	0.00	0.04	0.49%	48.00%	301,964	1,268.25	86	12,380.54		12380.54
Isopropyl Alchohol (Clean)	Anode Coat/Drying	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.63	86	1,250.00		1250.00
CMC2500	Anode Coat/Drying	0.00	0.00	0.00	0.00	--	0.00%	0	0.00	0	0.00		0.00
									Total for All Products (lb/year):		13,630.54		13,630.54
									Total for All Products (lb/hour):		1.56		1.56
									Total for All Products (ton/year):		6.82		6.82

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]Anode Coat Slurry is sprayed on the copper foil substrate and then dried in five (5) furnaces that exhaust directly to the outdoor atmosphere.
[3]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[4]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emissions Calculations
Natural Gas Combustion (≤ 100 MMBtu/hr)

Company Name: rPlus Energy LLC
Source Address: Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Emission Unit	Heat Input Capacity MMBtu/hr	HHV mmBtu/mmscf	Potential Throughput MMCF/yr
BOILER-01	12.50	1020	107.4
BOILER-02	12.5	1020	107.4
HOT WATER	13.5	1020	115.9
SPACE HEATING	13.5	1020	115.9

		Pollutant						
		PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Unit	Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	100	5.5	84
BOILER-01	Potential Emission in tons/yr	0.10	0.41	0.41	0.03	5.37	0.30	4.51
BOILER-02	Potential Emission in tons/yr	0.10	0.41	0.41	0.03	5.37	0.30	4.51
HOT WATER	Potential Emission in tons/yr	0.11	0.44	0.44	0.03	5.80	0.32	4.87
SPACE HEATING	Potential Emission in tons/yr	0.11	0.44	0.44	0.03	5.80	0.32	4.87
Total		**0.42**	**1.70**	**1.70**	**0.13**	**22.33**	**1.23**	**18.76**

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology
All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu; MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu
Potential Emission (tons/yr) = Potential Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutants (HAPs)

		HAPs - organic					HAPs - Metals						
		Benzene	Dichlorobe	Formaldehyde	Hexane	Toluene	Lead	Cadmium	Chromium	Manganese	Nickel	Total Haps	Highest single hap
Emission Unit	Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03		
BOILER-01	Potential Emission in tons/yr	1.1E-04	6.4E-05	4.0E-03	9.7E-02	1.8E-04	2.7E-05	5.9E-05	7.5E-05	2.0E-05	1.1E-04	1.0E-01	9.7E-02
BOILER-02	Potential Emission in tons/yr	1.1E-04	6.4E-05	4.0E-03	9.7E-02	1.8E-04	2.7E-05	5.9E-05	7.5E-05	2.0E-05	1.1E-04	1.0E-01	9.7E-02
HOT WATER	Potential Emission in tons/yr	1.2E-04	7.0E-05	4.3E-03	1.0E-01	2.0E-04	2.9E-05	6.4E-05	8.1E-05	2.2E-05	1.2E-04	1.1E-01	1.0E-01
SPACE HEATING	Potential Emission in tons/yr	1.2E-04	7.0E-05	4.3E-03	1.0E-01	2.0E-04	2.9E-05	6.4E-05	8.1E-05	2.2E-05	1.2E-04	1.1E-01	1.0E-01
	Total	4.7E-04	2.7E-04	1.7E-02	4.0E-01	7.6E-04	1.1E-04	2.5E-04	3.1E-04	8.5E-05	4.7E-04		

Potential Emission of Combined HAPs (tons/yr)	**4.2E-01**	
Potential Emission of Highest Single HAP (tons/yr)	**4.0E-01**	**Hexane**

Methodology
Methodology is the same as above.
The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emission Calculations
CATHODECOAT - CATHODE DRYER - NMP RECOVERY

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID CATHODECOAT-CATHODE DRYER - NMP RECOVERY

Unit ID	Throughput(each)	Inherenent Process Equipment	Stack	Pre-Solvent Recovery emissions (TPY)	Post-Solvent Recovery System Emissions (TPY)
C-Coat1	387,500 square inches per minute of coil	SRT-01	SR-01	5,101.41	10.20
C-Coat2	387,500 square inches per minute of coil	SRT-02	SR-02	5,101.41	10.20
C-Coat3	387,500 square inches per minute of coil	SRT-03	SR-03	5,101.41	10.20
C-Coat4	387,500 square inches per minute of coil	SRT-04	SR-04	5,101.41	10.20

Criteria Pollutant Emission Rates

Unlimited VOC/HAP Emissions

Material Name[1]	Physical Characteristics						Process Information			VOC Emissions[4]			Product Recovery
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Volume Displaced	Annual Usage	Process Temp.	Pre-Solvent Recovery emissions	Solvent recovery System Efficiency [3]	Post-Solvent Recovery System Emissions	Recovered Product
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%		tons/yr
Isopropyl Alchohol (Clean)	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.6	86	1250		2.50	
LCNT - Binder Solution for Cathode Mix (TDS	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450.0	86	9810000		19,620.00	4,895.19
Nickel Cobalt Aluminium Oxide (NCA)	38.66	244.15	0.00	0.00	0.00%	100.00%	0	0.0	86	0		-	
PVDF (Poly Vinylene Fluoride)	14.54	64.03	517.30	0.00	0.00%	100.00%	0	0.0	86	0	99.80%	-	
Oxalic Acid Cathode Additive	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25.0	0	0		-	
NMP (N-Methyl-2-Pyrrolidone)	8.62	99.13	0.00	8.62	100.00%	0.00%	3,597,647	15,500.0	104	31000000		62,000.00	15,469.00
							Total for All Products (lb/year):			**40,811,250.00**		**81,622.50**	
							Total for All Products (lb/hour):			**4,658.82**		**9.32**	
							Total for All Products (ton/year):			**20,405.63**		**40.81**	**20,364.19**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2] Cathode Coat Slurry is sprayed on the aluminum foil substrate.
[3]The integral NMP recovery system expected overall emissions control efficiency is 99.8% based on a design specifications submited on April 11, 2024.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]
[2]VOC emissions are generated from Cathode drying process which consist of five (5) furnaces that exhaust through the Solvent Recovery system to the atmosphere.
[7]Based on the review of AP-42 emission factors for Industrial Surface Coating (AP-42, Chapter 4.2.2.1) and Metal Coil Coating (AP-42, Chapter 4.2.2.10), there are no PM emissions from those processes and therefore, the emission factor for PM is zero.

Limited VOC/HAP Emissions

Material Name[1]	Physical Characteristics						Process Information			VOC Emissions[4]		
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Volume Displaced	Annual Usage	Process Temp.	Pre-Solvent Recovery emissions	Solvent recovery System Efficiency [3]	Post-Solvent Recovery System Emissions
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	
Isopropyl Alchohol (Clean)	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.6	86	1250		5.00
LCNT - Binder Solution for Cathode Mix (TDS	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450.0	86	9810000		39,240.00
Nickel Cobalt Aluminium Oxide (NCA)	38.66	244.15	0.00	0.00	0.00%	100.00%	0	0.0	86	0		-
PVDF (Poly Vinylene Fluoride)	14.54	64.03	517.30	0.00	0.00%	100.00%	0	0.0	86	0	99.60%	-
Oxalic Acid Cathode Additive	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25.0	0	0		-
NMP (N-Methyl-2-Pyrrolidone)	8.62	99.13	0.00	8.62	100.00%	0.00%	3,597,647	15,500.0	104	31000000		124,000.00
							Total for All Products (lb/year):			**40,811,250.00**		**163,245.00**
							Total for All Products (lb/hour):			**4,658.82**		**18.64**
							Total for All Products (ton/year):			**20,405.63**		**81.62**
												20.41

Per line

Appendix A: Emission Calculations
PLANT 2 CATHODECOAT - CATHODE DRYER - NMP RECOVERY

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unlimited VOC/HAP Emissions

Material Name[1]	Physical Characteristics						Process Information			VOC Emissions[4]			Product Recovery
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Volume Displaced	Annual Usage	Process Temp.	Pre-Solvent Recovery emissions	Solvent Recovery System Efficiency[3]	Post-Solvent Recovery System Emissions	Recovered Product
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/yr	tons/yr
Isopropyl Alchohol (Clean)	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.6	86	1,250	99.80%	2.5	
LCNT - Binder Solution for Cathode Mix (TDS-L)	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450.0	86	9,810,000		19,620	4,895.19
Nickel Cobalt Aluminium Oxide (NCA)	38.66	244.15	0.00	0.00	0.00%	100.00%	0	0.0	86	0		0	
PVDF (Poly Vinylene Fluoride)	14.54	64.03	517.30	0.00	0.00%	100.00%	0	0.0	86	0		0	
Oxalic Acid Cathode Additive	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25.0	0	0		0	
NMP (N-Methyl-2-Pyrrolidone)	8.62	99.13	0.00	8.62	100.00%	0.00%	3,597,647	15,500.0	104	31,000,000		62,000	15,469.00
									Total for All Products (lb/year):	**40,811,250.00**		**81,622.50**	
									Total for All Products (lb/hour):	**4,658.82**		**9.32**	
									Total for All Products (ton/year):	**20,405.63**		**40.81**	

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2] Cathode Coat Slurry is sprayed on the aluminum foil substrate.
[3]The integral NMP recovery system expected overall control efficiency is 99.8% based on a design specifications submited on April 11, 2024.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]
[2]VOC emissions are generated from Cathode drying process which consist of five (5) furnaces that exhaust through the Solvent Recovery system to the atmosphere.
[7]Based on the review of AP-42 emission factors for Industrial Surface Coating (AP-42, Chapter 4.2.2.1) and Metal Coil Coating (AP-42, Chapter 4.2.2.10), there are no PM emissions from those processes and therefore, the emission factor for PM is zero.

Limited VOC/HAP Emissions

Material Name[1]	Physical Characteristics						Process Information			VOC Emissions[4]			Product Recovery
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Volume Displaced	Annual Usage	Process Temp.	Pre-Solvent Recovery emissions	Solvent Recovery	Post-Solvent Recovery System	Recovered Product
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	tons/yr
Isopropyl Alchohol (Clean)	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.6	86	1250	99.60%	5.00	
LCNT - Binder Solution for Cathode Mix (TDS-L)	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450	86	9810000		39,240.00	4,885.38
Nickel Cobalt Aluminium Oxide (NCA)	38.66	244.15	0.00	0.00	0.00%	100.00%	0	0	86	0		0.00	
PVDF (Poly Vinylene Fluoride)	14.54	64.03	517.30	0.00	0.00%	100.00%	0	0	86	0		0.00	
Oxalic Acid Cathode Additive	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25	0	0		0.00	
NMP (N-Methyl-2-Pyrrolidone)	8.62	99.13	0.00	8.62	100.00%	0.00%	3,597,647	15,500	104	31000000		124,000.00	15,438.00
									Total for All Products (lb/year):	**40811250.00**		**163,245.00**	
									Total for All Products (lb/hour):	**4658.82**		**18.64**	
									Total for All Products (ton/year):	**20405.63**		**81.62**	

Appendix A: Emission Calculations
SLITTING

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

Process Descriptions

Unit ID	Throughput(each)	Control	Stack
AS1	3,937 in/min	ASBF1- ASBF4	01-DCEF-1
AS2	3,937 in/min	ASBF5- ASBF8	
AS3	3,937 in/min	ASBF9-ASBF12	
AS4	3,937 in/min	ASBF13- ASBF16	
CS1	3,937 in/min	CSBF1- CSBF4	01-DCEF-2
CS2	3,937 in/min	CSBF5- CSBF8	
CS3	3,937 in/min	CSBF9-CSBF12	
CS4	3,937 in/min	CSBF13- CSBF16	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed - Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Anode Slitting	Dry	Brass	**0.000472**	**0.0393**	**15,748**	**bagfilter**	**98**	8.70	0.3143049	5	2.92E-07	944,880	0.28	0.01	1.21	0.02
Cathode Slitting	Dry	Aluminum	**0.000472**	**0.0393**	**15,748**	**bagfilter**	**98**	2.80	0.1011556	5	9.38E-08	944,880	0.09	0.002	0.39	0.01

Sources
AP-42 Chapter 12 Related Emission Factor Documents
https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Copper substrate that is used for the Anode has used brass metal to estimate PM emissions as this is a metal that has similar properties to copper.
3. Metal cutting rate (inches/minute) is assumed to be 100 meters per minute per line (or 3,937 inches per minute per line X 4 production lines) similar to the LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021
4. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

Specific Gravity/Fume Generation Table
Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
TERMINAL WELD

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput	Control ID	Stack ID
LPW1-1 to LPW1-2	897 cells/hr	LPWBF1 to LPWBF2	01-DCEF-7
LPW2-1 to LPW2-2	897 cells/hr	LPWBF3 to LPWBF4	
LPW3-1 to LPW3-2	897 cells/hr	LPWBF5 to LPWBF6	
LPW4-1 to LPW4-2	897 cells/hr	LPWBF7 to LPWBF8	

Particulate Emissions																		
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions					
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)	Limited %CE	Limited (lb/hr)	Limited (ton/yr)
Anode Terminal Weld	Dry	Brass	0.4606299	0.114173	76	baqfilter	98	8.7	0.31	5	8.26E-04	4,560	3.7688	0.0754	16.5073	0.3301	90	0.3769	1.65072663
Cathode Terminal Weld	Dry	Aluminum	0.4606299	0.114173	76	baqfilter	98	2.8	0.10	5	2.66E-04	4,560	1.2129	0.0243	5.3127	0.1063	90	0.1213	0.53126834

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing which is the metal type selected for can-cap welding.
3. Metal welding rate (inches/minute) is assumed to be 6.46 cm per cell for both anode and cathode combined and 2,619,240 cells per month
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)

2619240 cells per month
Weld per cell is 6.46 cm in length (for terminal weld - for both anode and cathode combined

Total laser weld speed (inches/minute) = 76 inches/min for all 4 lines

Specific Gravity/Fume Generation Table
Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
ASSEMBLY (General)

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ASSEMBLY
Accounts for any emissions missed from the proccess associated with the other assembly operations

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyanate[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
DEMAK DK 001 (Gap Filler Hardener)	Assembly	10.10	250.00	<0.00001hPa (20 C)	0.10	1.00%	--	2,972	15	86	300.00		90.00	60.00		18.00
DMC (Di Methyl Carbonate)	Assembly, Innovation	8.81	90.08	1.10	0.00	0.00%	0.00%	6,798	30	86	0.00		0.00	0.00		0.00
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2,493.33	70%	748.00	0.00	70%	0.00
P-80 Grip-It	Pack/Assembly	8.30	18.00	0.46	0.01	0.10%	3.00%	120	0.50	86	1.00		0.30	0.00		0.00
SEPUR 114FR THIXO - THIXO/L -FV THIXO (Gap Filler Resin)	Assembly	12.67	362.40	0.00	0.00	0.00%	62.00%	15,783	100	86	0.00		0.00	0.00		0.00
Henkel Technomelt PS 1753 (Hotmelt Resin)	Assembly	8.14	--	Negligible	0.08	1.02%	100.00%	4,912	20	86	408.98		122.69	0.00		0.00
								Total for All Products (lb/year):			**3,203.32**		**960.99**	**60.00**		**18.00**
								Total for All Products (lb/hour):			**0.37**		**0.11**	**0.01**		**0.00**
								Total for All Products (ton/year):			**1.60**		**0.48**	**0.03**		**0.01**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2] Assembly includes general battery assembly, notching, terminal welding, can-cap welding, and electrolyte filling.
[3]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
NOTCHING-STACKING

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

Unit ID	Throughput (total)	Control ID	Stack ID
S1 1 to S1 32	897 cells/hr	S1 BF1 to S1 BF32	01-DCEF-3
S2 1 to S2 32	897 cells/hr	S2 BF1 to S2 BF32	01-DCEF-4
S3 1 to S3 25	897 cells/hr	S3 BF1 to S3 BF25	01-DCEF-5
S4 1 to S4 25	897 cells/hr	S4 BF1 to S4 BF25	01-DCEF-6

1968.5 in/min, total

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed - Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Anode Stacking	Dry	Brass	0.000472	0.0393	15,478	bagfilter	98	8.7	0.3143049	5	2.9E-07	928,685	2.71E-01	5.41E-03	1.19E+00	2.37E-02
Cathode Stacking	Dry	Aluminum	0.000472	0.0393	15,478	bagfilter	98	2.8	0.1011556	5	9.4E-08	928,685	8.71E-02	1.74E-03	3.82E-01	7.63E-03
												Total:	3.58E-01	7.16E-03	1.57E+00	3.13E-02

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Copper substrate that is used for the Anode has used brass metal to estimate PM emissions as this is a metal that has similar properties to copper.
3. There is not a representative emission factor for the notching process (which is cutting of the metal subtrate aluminum and copper using a die (die cutter)). We believe it is conservative to use plasma / laser cutting emission factors to estimate the PM emissions from Notching.

5. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
6. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
7. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%
4. Working parameter :

Cells per month	2619240	
Cut length per cell :	657.43	cm
Total laser cut speed (inches/minute) =	15,478	inches/min

Specific Gravity/Fume Generation Table
Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
CAN-CAP WELD

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	roughput (total per li	Control ID	Stack ID
CanCap1-1 to CANCAP1-2	897 cells/hr	CANCAPBF1 to CANCAPBF2	01-DCEF-8
CanCap2-1 to CANCAP2-2	897 cells/hr	CANCAPBF3 to CANCAPBF4	
CanCap3-1 to CANCAP3-2	897 cells/hr	CANCAPBF5 to CANCAPBF6	
CanCap4-1 to CANCAP4-2	897 cells/hr	CANCAPBF7 to CANCAPBF8	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
CAN-CAP WELD	Dry	Aluminum	0.0354331	0.0393701	152	bagfilter	98	2.8	0.1011556	5	7.05563E-06	9,125	0.0644	0.0013	0.2820	0.0056

Sources
AP-42 Chapter 12 Related Emission Factor Documents
https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.

2. Aluminum alloy is used for the cylindrical can casing which is the metal type selected for can-cap welding.

4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)

5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)

6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

3. Working parameter :

Cells per month	2619240			
Weld length per cell :	6.46		cm	
Total laser weld speed (inches/minute) =		152	inches/min	for all 4 lines

Appendix A: Emission Calculations
ELECTROLYTE FILLING

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

Unit ID	Throughput (total)	Control	Stack
EFM1-EFM8	897 cells per hour	CAT-02a, CAT-02b, CAT-02c, CAT-02d, & CAT-02e Standby	S-2a, S-2b, S-2c, S-2d, and S-2e Standby
EFM9-EFM16	897 cells per hour		
EFM17-EFM24	897 cells per hour		
EFM25-EFM32	897 cells per hour		

VOC Emissions

Calculate VOC Emissions of Electrolyte Solution from filling each battery cell.
Use USEPA Equation for Evaporative Losses from a Spill (see references below)

QR = (0.284 x u^0.78 x MW^2/3 x A x VP / (82.05 x T)

u =	**0.5**	**m/s**
MW =	**0.22**	**lb/mol**
A =	**0.000844962**	**sq ft.**
VP =	**55.364**	**mm Hg at 25 deg C**
T =	**294**	**K**

QR = lb/min per cell (calculation is for 1 cell)
u = assumed to be conservative value of air motion (speed) across electrolyte Ssel pin = 10 feet per min = 0.5 m/s
MW = molecular weight of electrolyte solution = used MW of highest concentration component = DMC (dimethyl carbonate) = 0.22 lb/mol
A = area of electrolyte filling pin hole = assumed (conservative - large) diameter of electrolyte filling hole of cylindrical cell = 1 cm = 0.0328 feet = 0.000845 sq. feet
VP = vapor pressure for the electrolyte is not available so we used DMC's vapor pressure = 55.364 mmHg @ 25 deg C (based on vapor pressure of dimethyl
T = temperature at the surface of the cell electrolyte filling hole is assumed to be room temperature = 70 deg F or 294 deg K.

2.799 Kpa (kilo pascels)

QR = 0.284 x ($0.5^{0.78}$ m/s)*($0.22^{0.6667}$ lb/mol) x 0.000845 sq. ft x 55.364mmHg ÷ (82.05*294K)
QR = 1.17546E-07 lb VOC/min/cell

(Multiply QR by length of time that the filling hole is open which according to Patent No. US6387561B1[1] can be up to 2 hours)

QR =	**1.41055E-05**	**lb VOC/cell**		**No. of Cells / yr**	31430880 **cells produced per year**
QR =	**443.35**	**lb VOC/year**	**Uncontrolled**		**2,619,240**
QR =	**0.22**	**tons VOC/year**	**Uncontrolled**		
QR =	**0.05**	**lb VOC/hr**	**Uncontrolled**		
QR =	**133.00**	**lb VOC/year**	**Controlled**		
QR =	**0.07**	**tons VOC/year**	**Controlled**		
QR =	**0.02**	**lb VOC/hr**	**Controlled**		

31430880 cells per year total
7857720 cells/year/line

897 **cells/hr/line**

[1] *Patent No. US6387561B1Electrolyte-solution filling method and battery structure of lithium secondary battery states:*
"It is confirmed by FIG. 3 that, according to a conventional electrolyte solution filling method, ***approximately two hours*** *of the electrolyte solution impregnation time period were required by the time when the alternate impedance dropped to a certain constant value, while, according to the present invention, the equivalent impregnation processing could be implemented in about 30 minutes and the cut in time for producing the battery can be attained."*

Appendix A: Emission Calculations
TAPING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47692-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control ID	Stack ID
TM-1	3,588 cells/hr	TMBF1-TMBF4	02-EF-301-302
TM-2		TMBF5-TMBF8	
TM-3		TMBF9-TMBF12	
TM-4		TMBF13-TMBF16	
TM-5		TMBF17-TMBF20	
TM-6		TMBF21-TMBF24	
TM-7		TMBF25-TMBF28	
TM-8		TMBF29-TMBF32	

Particulate Emissions																
INPUT DATA (PUT YOUR INFORMATION BELOW)													PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
TAPING	Dry	Aluminum	0.000472	0.0393	15,478	BagFilter	98	2.8	0.1011556	5	9.38198E-08	928.685	0.087	0.002	0.382	0.008

Sources
AP-42 Chapter 12 Related Emission Factor Documents
https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing "seal" which is the metal type selected for cylindrical cans.
3. Metal cutting rate (inches/minute) is assumed to be 100 meters per minute per line - conservative for seal welding - (or 3,937 inches per minute per line X 4 production lines) similar to the LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%
Metal Cutting Speed -Feed Rate (inches/minute) (Manufacturer's rating or best engineering knowledge if manual feed)

Cells per month 2619240
Cut length per cell : 657.43 cm
Total laser cut speed (inches/minute) = 15,478 inches/min for all 4 lines

Appendix A: Emission Calculations
SEALING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control ID	Stack ID
SPW1-1 to SPW1-2	897 cells/hr	SPWBF1	02-EF-301-30
SPW2-1 to SPW2-2	897 cells/hr	SPWBF2	
SPW3-1 to SPW3-2	897 cells/hr	SPWBF3	
SPW4-1 to SPW4-2	897 cells/hr	SPWBF4	

Particulate Emissions																
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
SEAL	Dry	Aluminum	0.000472	0.00472441	3	BagFilter	98	2.8	0.1011556	5	1.12785E-08	170	1.91E-06	3.82E-08	8.37E-06	1.67E-07

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing "seal" which is the metal type selected for cylindrical cans.
3. Metal cutting rate (inches/minute) is assumed to be 1 cm in diameter for each cell - conservative for seal welding would be seal weld of the perimeter which equals
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

cells per month **2,619,240**
weld length per cell **0.12 cm**
Total laser weld speed (inches/minute) = **3** **inches/min for all 4 lines**

Appendix A: Emission Calculations
FORMATION

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput	Control ID	Stack
HVC1-HVC4	3,588 cells/hr total	CAT-03a, CAT-03b & CAT-03c /Standby	S-3a, S-3b, S-3c, S-3d, and S-3e Standby

The Formation process includes a round of aging in electrolyte solution, charging/discharging, a second round of aging, output testing, insulating, visual inspections, and packaging.

VOC/CO2/H2 Emissions

Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017

Calculate vent-gas released during formation

From research conducted by others, calculate the total gas amount (by weight) emitted per cell

Possible Amount of Gas Emitted during Formation from 1 Cell (used Worst Case Value)

Device (LIB Cells)	Total Gas Emission Amount/mmol/cell[1]
ICR18650-32A (NCA[2])	6.2
INR18650-35E (NCA[2])	3.69
INR18650-MJ1 (NCA[2])	1.64

[1] *1st Venting Condition of a damaged cell conservatively represents LIB Formation initial charging/discharging*
[2] *Table 1 "Holistic methodology for characterisation of thermally induced…….RSC Advances, 2017"*

Formation Pollutants Molecular Weights

Formation Pollutants	Molecular Weight		
	g/mol	g/mmol	lb/mmol
H2	2.016	0.002016	4.44053E-06
CO2	44.01	0.04401	9.69383E-05
CO	28.01	0.02801	6.1696E-05
CH4	16.04	0.01604	3.53304E-05
VOCs	78.95	0.07895	0.000173899

Formation Gas Composition	Percent by Weight[3]	Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate
	(%)	(lb/cell[4])	(lb/hr)	(lb/yr)	(tons/yr)	(lb/hr)	(lb/yr)	(tons/yr)
H2	2.4%	6.69E-07	2.40E-03	21.03	0.01	2.40E-03	21.03	0.01
CO2	82.2%	4.94E-04	1.77E+00	15,526.11	7.76	1.77E+00	15,526.11	7.76
CO	0.0%	0.00E+00	-	-	-	-	-	-
CH4	0.0%	0.00E+00	-	-	-	-	-	-
VOCs	15.4%	1.66E-04	5.95E-01	5,211.96	2.61	1.78E-01	1,563.59	0.78
Total	100.0%							

[3] *Formation Gas Composition emission percent by weight from "Table 1, "Detection of Li-ion battery failure…..etransportion 7 (2021) 100100"*
[4] *Annual # of LIB Cells Produced at Kokomo Indiana = 31,430,880 cells / yr* 31,430,880.00
[5] *Control Efficiency of the CAT Towers= 70%*
[6] Assumed that CAT Towers will not destroy CO2 or H2 - 0% control efficiency (conservative assumption)

Table 1, "Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017"

HVC : Heating Vacuum Charger

HVC performs the following three treatments simultaneously on the cell where the electrolyte injection has been completed.
1. Heating
2. Connect the vacuum tube (hopper) to discharge gas inside the cell
3. Charge

Table 1, "Detection of Li-ion battery failure and venting with Carbon Dioxide Sensors, Ting Cai, Puneet Valecha, Vivian Tran, Brian Engle, Anna Stefanopoulou, Jason Siegel, eTransportation 7 (2021) 100100"

Appendix A: Emission Calculations
MODULE TEST

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (per unit)	Venting
SD1- SD4	897cells/hour	indoors
HBB1- HBB4	897cells/hour	
PSA1-PSA8	897cells/hour	
CUS1-CUS8	897cells/hour	

Process ID MODULE & TEST Criteria and HAP Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
Sonderhoff Fermapor K31-B-4	Module, Pack	9.91	250.25	0.04	0.26	2.61%	0.00%	101	0.50	86	26.10	0%	26.10	6.53	0%	6.53
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electro	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2493.33		2493.33	0.00		0.00
											Total for All Products (lb/year):		**2,519.43**	**6.53**		**6.53**
											Total for All Products (lb/hour):		**0.29**	**0.0007**		**7.45E-04**
											Total for All Products (ton/year):		**1.26**	**0.0033**		**3.26E-03**

P = Vapor pressure of product [Pa]
V = Volume displaced [L]
n = moles of gas [mol]
R = Ideal Gas Constant [8,314 L-Pa/mol-K]
T = Temperature [K]

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will form the cells into a module (8-12 cells) and initial testing will be conducted.
[3]VOC Emissions are not controlled in this area.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
FRAME SIDE / BUSBAR WELDING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control Device ID	Stack ID
FSW1	897cells/hour	MBF1	
BW1	897cells/hour	MBF2	
FSW2	897cells/hour	MBF3	
BW2	897cells/hour	MBF4	
FSW3	897cells/hour	MBF5	
BW3	897cells/hour	MBF6	02-EF-301-302
FSW4	897cells/hour	MBF7	
BW4	897cells/hour	MBF8	
FEW1	897cells/hour	MBF9	
FEW2	897cells/hour	MBF10	
FEW3	897cells/hour	MBF11	
FEW4	897cells/hour	MBF12	

Particulate Emissions																
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Frame Side Weld	Dry	Aluminum	3.43E-02	2.48E-02	152	bagfilter	98	2.8	0.10	5	4.30E-06	9,120	0.0392	0.0008	0.1716	0.0034
Busbar Weld	Dry	Aluminum	6.22E-02	2.95E-02	152	bagfilter	98	2.8	0.10	5	9.28991E-06	9,120	0.0847	0.0017	0.3711	0.0074
Frame End Weld	Dry	Aluminum	4.53E-02	2.91E-02	152	bagfilter	98	2.8	0.10	5	6.67149E-06	9,120	0.0608	0.0012	0.2665	0.0053
													0.1848	0.0037	0.8092	0.0162

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
3. Metal welding rate (inches/minute) is assumed to be 25 cm per cell and 675,000 cells per month - conservative for can-cap welding - (or 152 inches per minute for all 4 production lines)
4. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

Cells per month	2,619,240	
Weld length per cell	6.46	
Total laser weld speed=	152	;hes/min for all 4 lines

Appendix A: Emission Calculations
Reciprocating Internal Combustion Engines - Natural Gas
4-Stroke Rich-Burn (4SRB) Engines

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

EMGEN01-EMGEN 10

Maximum Output Horsepower Rating (hp)	700
Brake Specific Fuel Consumption (BSFC) (Btu/hp-hr)	7600
Maximum Hours Operated per Year (hr/yr)	500
Potential Fuel Usage (MMBtu/yr)	2660
High Heat Value (MMBtu/MMscf)	1020
Potential Fuel Usage (MMcf/yr)	2.61

		Potential Emissions (tons/yr)										
Criteria Pollutants	Emission Factor (lb/MMBtu)	EMGEN-01	EMGEN-02	EMGEN-03	EMGEN-04	EMGEN-05	EMGEN-06	EMGEN-07	EMGEN-08	EMGEN-09	EMGEN-10	**Total (ton/year)**
PM*	9.50E-03	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	**0.1264**
PM10*	1.94E-02	0.03	0.03	0.05	0.06	0.08	0.11	0.14	0.19	0.25	0.34	**1.2766**
PM2.5*	1.94E-02	0.03	0.03	0.05	0.06	0.08	0.11	0.14	0.19	0.25	0.34	**1.2766**
SO2	5.88E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	**0.0078**
NOx	2.21E+00	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	**29.3930**
VOC	2.96E-02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	**0.3937**
CO	3.72E+00	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	**49.4760**

*PM emission factor is for filterable PM-10. PM10 emission factor is filterable PM10 + condensable PM.
PM2.5 emission factor is filterable PM2.5 + condensable PM.

Hazardous Air Pollutants (HAPs)

		Potential Emissions (tons/yr)										
Pollutant	Emission Factor (lb/MMBtu)	EMGEN-01	EMGEN-02	EMGEN-03	EMGEN-04	EMGEN-05	EMGEN-06	EMGEN-07	EMGEN-08	EMGEN-09	EMGEN-10	**Total (ton/year)**
Acetaldehyde	2.79E-03	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.037
Acrolein	2.63E-03	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.035
Benzene	1.58E-03	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.021
1,3-Butadiene	6.63E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.009
Formaldehyde	2.05E-02	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.273
Methanol	3.06E-03	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.041
Total PAH**	1.41E-04	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
Toluene	5.58E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.007
Xylene	1.95E-04	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
	Total	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	

HAP pollutants consist of the nine highest HAPs included in AP-42 Table 3.2-3.
**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

total HAPS 0.427
Highest single HAP 0.273 Formaldehyde

Methodology
Emission Factors are from AP-42 (Supplement F, July 2000), Table 3.2-3
Potential Fuel Usage (MMBtu/yr) = [Maximum Output Horsepower Rating (hp)] * [Brake Specific Fuel Consumption (Btu/hp-hr)] * [Maximum Hours Operated per Year (hr/yr)] / [1000000 Btu/MMBtu]
Potential Emissions (tons/yr) = [Potential Fuel Usage (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2000 lb/ton]

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide

Appendix A: Emission Calculations
FIREPUMP

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity (MMBtu/hr)	8.7
Maximum Hours Operated per Year	500
Potential Throughput (MMBtu/yr)	4,330
Sulfur Content (S) of Fuel (% by weight)	0.500

1237 BHP
8659000 btu/hr
8.659 mmbtu/hr

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.10	0.0573	0.0556	0.505 *(1.01S)*	3.2 **see below	0.09	0.85
Potential Emission in tons/yr	0.22	0.12	0.12	1.09	6.93	0.19	1.84
Potential Emission in lb/hr	0.87	0.50	0.48	4.37	27.71	0.78	7.36

*PM emission factor is from AP-42 Table 3.4-1. The PM10 and PM2.5 emission factors for are from AP-42 Table 3.4-2. The PM10 emission factor is the sum of filterable PM10 and condensable particulate. The PM2.5 emission factor is the sum of filterable particulate less than 3 um and condensable particulate.
**NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBtu

Hazardous Air Pollutants (HAP	Pollutant						Total PAH
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	HAPs***
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04	7.89E-05	2.52E-05	7.88E-06	2.12E-04
Potential Emission in tons/yr	1.68E-03	6.08E-04	4.18E-04	1.71E-04	5.46E-05	1.71E-05	4.59E-04
Potential Emission in lb/hr	3.84E-04	1.39E-04	9.54E-05	3.90E-05	1.25E-05	3.89E-06	1.05E-04

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Potential Emission of Total HAPs (tons/yr)	**3.41E-03**

Methodology
Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4.
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

Appendix A: Emission Calculations

COOLINGTOWERS

Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

CWT01-CWT26

	40000	
Cooling Amount	1,538	tons
	3	gpm/ton

Circulating water flow rate (W_c) per tower	4,615 gal/min
Drift loss	0.020%
Blowdown/drift TDS	350 mg/l
PM10 Mass Fraction	55.840%
PM2.5 Mass Fraction	0.21%

	Total Liquid Drift ($lb/10^3$ gal)	PM		PM10		PM2.5	
		(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Cooling Tower 1	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 2	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 3	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 4	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 5	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 6	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 7	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 8	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 9	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 10	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 11	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 12	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 13	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 14	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 15	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 16	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 17	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 18	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 19	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 20	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 21	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 22	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 23	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 24	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 25	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 26	1.67	0.16	0.71	0.09	0.40	0.00	0.00
	Total	**4.20**	**18.41**	**2.35**	**10.28**	**0.01**	**0.04**

Methodology

Methodology ref: par. 2, page 13.4-3, AP-42 (1/95)

Total Liquid Drift ($lb/10^3$ gal) = Drift loss (%) / 100 x 8.34 (lb/gal) x 1,000 ($gal/10^3$ gal)

Emissions (lb/hr) = Total Liquid Drift ($lb/10^3$ gal) x Circulating water flow rate (gal/min) / 1,000 (gal/ gal 10^3) x 60 (min/hr) x Blowdown/drift TDS (mg/l) / 1,000,000 (mg/l / weight fraction)

Emissions (tons/yr) = Emissions (lb/hr) x 8,760 (hr/yr) / 2,000 (lb/ton)

PM10 and PM2.5 mass fractions were estimated using, "Calculating Realistic PM10 Emissions from Cooling Towers," by Reisman, J. and Frisbie, G.

Appendix A: Emission Calculations
MAINT - Paint Booth

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

TOUCH UP PAINT EMISSIONS SUMMARY

Pollutant	HAP?	Cans per Week	oz/week	Gal/week	Gal/yr	lb Pollutant / gal	PM CE	Uncontrolled (lb/hr)	Uncontrolled (lb/yr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (lb/yr)	Controlled (tons/yr)
VOC Emissions	Not Applicable	5	60	0.47	24.4	3.45		0.010	84.1	4.20E-02	0.010	84.1	4.20E-02
PM Emissions	Not Applicable	5	60	0.47	24.4	3.00	99%	0.008	73.1	3.66E-02	0.0001	0.0005	2.38E-07
Isobutyl Acetate	No	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03
Methyl Acetate	No	5	60	0.47	24.4	3.23		0.009	78.6	3.93E-02	0.009	78.6	3.93E-02
Talc	No	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03
Toluene	Yes	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03

From the Krylon Touch up paint SDS [1]Control Efficiency obtained from the manufacturer's specification below.

Key Assumptions

12	oz per aerosol can
128	oz/gal
99%	paint booth filter control efficiency for PM emissions
100%	transfer efficiency (conservative assumption)
5	cans used per week every week of the year (conservative assumption)
100%	All the contents of the can are used for each part or tool painted (conservative assumption)

Appendix A: Emission Calculations
MAINT - WELDING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID MAINTENANCE
Criteria Pollutant Emission Rates

Welding Emissions: Emission factors vary by process used and electrode type.

Emission Factor: Table 12.19-1, AP-42
Maximum amount of electrode used (conservative assumption for typical maint dept): 5,000 *pounds carbon steel electrode*
Gas Metal Arc Welding (GMAW) used - E70S-#.

PM10 Emission Factor:	5.2	lb PM10/1000 lb electrode			
PM10 = (5.2 lb PM10 / 1000 lb electrode) * 33 lb electrode /yr					
Manganese = HAP Content % * PM10 lb/yr					
Typical Manganese HAP Content (%) =	5%				
Total PM10 Emission Rate (lb/yr) =	26.0	lb PM10/yr	divided by	8760	hours/yr
Manganese Emission Rate (lb/yr) =	1.30	pounds Manganese/yr		8760	hours/yr
Total PM10 Emission Rate (lb/hr) =	**2.97E-03**	lb PM10/hr			
Manganese Emission Rate (lb/hr) =	**1.48E-04**	lb Manganese/hr			
Total PM10 Emission Rate (tons/yr) =	**1.30E-02**	tons PM10/yr			
Manganese Emission Rate (tons/yr) =	**6.50E-04**	tons Manganese/yr			

Appendix A: Emission Calculations
Fugitive Dust Emissions - Paved Roads

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Paved Roads at Industrial Site
The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (1/2011).

Vehicle Informtation (provided by source)

Type	Maximum number of vehicles per day	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight of Loaded Vehicle (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
2-Axle 10' Straight Truck	20.0	2.0	40.0	4.5	180.0	10000	1.894	75.8	27651.5
Tanker Truck (6000 gal)	10.0	2.0	20.0	4.2	84.0	10000	1.894	37.9	13825.8
Semi-Trailer (Freight Truck (6 axles))	45.0	2.0	90.0	5.5	495.0	10000	1.894	170.5	62215.9
		Totals	**150.0**		**759.0**			**284.1**	**103693.2**

Average Vehicle Weight Per Trip = 5.1 tons/trip
Average Miles Per Trip = 1.89 miles/trip

Unmitigated Emission Factor, Ef = [k * (sL)^0.91 * (W)^1.02] (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/VMT = particle size multiplier (AP-42 Table 13.2.1-1)
W =	5.1	5.1	5.1	tons = average vehicle weight
sL =	9.7	9.7	9.7	g/m^2 = silt loading value for paved roads at iron and steel production facilities - Table 13.2.1-3)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [1 - (p/4N)] (Equation 2 from AP-42 13.2.1)
Mitigated Emission Factor, Eext = Ef * [1 - (p/4N)]
where p = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N = 365 days per year

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	0.455	0.091	0.0223	lb/mile
Mitigated Emission Factor, Eext =	0.416	0.083	0.0204	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Mitigated PTE of PM (Before Control) (tons/yr)	Mitigated PTE of PM10 (Before Control) (tons/yr)	Mitigated PTE of PM2.5 (Before Control) (tons/yr)	Mitigated PTE of PM (After Control) (tons/yr)	Mitigated PTE of PM10 (After Control) (tons/yr)	Mitigated PTE of PM2.5 (After Control) (tons/yr)
2-Axle 10' Straight Truck	5.75	1.15	0.28	2.87	0.57	0.14
Tanker Truck (6000 gal)	2.87	0.57	0.14	1.44	0.29	0.07
Semi-Trailer (Freight Truck (6 axles))	12.93	2.59	0.63	6.46	1.29	0.32
Totals	**21.55**	**4.31**	**1.06**	**10.77**	**2.15**	**0.53**
Total lb/hr	**4.92**	**0.98**	**0.24**	**2.46**	**0.49**	**0.12**

Methodology

Total Weight driven per day (ton/day)	= [Maximum Weight of Loaded Vehicle (tons/trip)] * [Maximum trips per day (trip/day)]
Maximum one-way distance (mi/trip)	= [Maximum one-way distance (feet/trip) / [5280 ft/mile]
Maximum one-way miles (miles/day)	= [Maximum trips per year (trip/day)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip)	= SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]
Average Miles Per Trip (miles/trip)	= SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]
Unmitigated PTE (tons/yr)	= [Maximum one-way miles (miles/yr)] * [Unmitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (Before Control) (tons/yr)	= [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (After Control) (tons/yr)	= [Mitigated PTE (Before Control) (tons/yr)] * [1 - Dust Control Efficiency]

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particle Matter (<2.5 um)
PTE = Potential to Emit

Appendix A: Emission Calculations
ELECTROLYTE STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ELECTROLYTE STORAGE EST-1

The Electrolyte is stored in a bulk storage tank and is sent via pipe using nitrogen gas. There are tank breathing and working emissions and fugitive emissions from coupler and safety valves.

VOC Emissions

Material Name[1]	Process Information						Connectors			Valves			VOC Emissions[4]		
	Density	Vapor Press.	VOC As Used / As Applied		Maximum Annual Throughput		Count	Emission Factor[4]	VOC Emissions	Count	Emission Factor[4]	VOC Emissions	Uncontrolled Emissions	Control Efficiency[2]	Controlled Emissions
	lbs/gal	psia	lbs/gal	%	Gal/year	Tons/year		lb/hr/ea	lb/hr		lb/hr/ea	lb/hr	lb/year	%	lb/year
SoulBrain Electrolyte	10.20	Not Avail	8.16	80.00%	3,237,312	16,510	15	0.0005	0.0075	15	0.0035	0.0525	525.60	70%	157.68
												Total for All Products (lb/year):	525.60		157.68
												Total for All Products (lb/hour):	0.06		0.02
												Total for All Products (ton/year):	0.26		0.08

[1] *This is the list of utilized materials is based on comparable facilities (Samsung-SDI Korea Plant).*

Electrolyte Storage Tank							VOC Emissions[3], Uncontrolled				Control Efficiency[2]	VOC Emissions[3], Controlled			
Tank Types	Contents	Capacity (gal)	Total Throughput (gal)	Quantity	Throughput per Tank (gal)	Emission Calculation Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr	%	lb/yr/tank	lb/hr	lb/yr	ton/yr
Electrolyte Storage Tank	Virgin Electrolyte	528	3,237,312	1	3,237,312	TankESP	0.29	3.33 E-05	0.29	1.46 E-04	70%	0.20	2.33 E-05	0.20	1.02 E-04
Total for all Units								**3.33 E-05**	**0.29**	**1.46 E-04**			**2.33 E-05**	**0.20**	**1.02 E-04**

Control Device	Process	Quantity (Sets)	Capture Efficiency	Control Efficiency[2]	Total Control	Internal Diameter	Height	Temperature	Operational Flow Rate per Unit	
			%	%	%	ft	ft	F	ACFM	SCFM
CAT-06	Electrolyte Storage	1	100%	70%	70%	3.25	27.48	86	24,720	22,945
Total for all Units									**24,720**	**22,945**

[2] *Electrolyte storage will be in a building with CAT Tower Controls (APC ID: CAT-06), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).*

[3] *Tank VOC emissions calculated using BREEZE TanksESP*

[4] *Fugitive VOC emissions will occur from valves and connectors inside the storage room (but will be controlled by the CAT Tower) which have been estimated as follows:*
Emission factors are based on TCEQ Fugitive Guidance document APDG 6422, dated June 2018, Table 1 (https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/fugitive-guidance.pdf)

Emission factors for Light Liquid are used because of the vapor pressure of the electrolyte.
Emission factors for SOCMI Without Ethylene are used due to product components listed on SDS.
Emissions [lb/hr] = Fugitive Emission Factor [lb/hr/component] x Count of Components [#]

Appendix A: Emission Calculations
INNOVATION

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

VOC Emissions

Process ID INNOVATION
Criteria Pollutant Emission Rates

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year
DMC (Di Methyl Carbonate)	Assembly, Innovation	8.81	90.08	1.10	0.00	0.00%	0.00%	14	0.06	86	0.00	0%	0.00
										Total for All Products (lb/year):	**0.00**		**0.00**
										Total for All Products (lb/hour):	**0.00**		**0.00**
										Total for All Products (lb/day):	**0.00**		**0.00**
										Total for All Products (ton/year):	**0.00**		**0.00**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will be R&D for LIB production
[3]VOC Emissions are not controlled.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
PACKING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID PACKING
Criteria Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
Acetone (Clean)	Pack	0.00	0.00	0.00	0.00	0.00%	0.00%	0	0.00	0	0.00	0%	0.00	0.00	0%	0.00
Sonderhoff Fermapor K31-B-4	Module, Pack	9.91	250.25	0.04	0.26	2.61%	0.00%	101	0.50	86	26.10		26.10	6.53		6.53
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2,493.33		2,493.33	0.00		0.00
P-80 Grip-It	Pack/Assembly	8.30	18.00	0.46	0.01	0.10%	3.00%	120	0.50	86	1.00		1.00	0.00		0.00
Dr Schultz PU- Hot Cleaner	HVS pack	9.17	0.00	0.00	0.00	0.00%	0.00%	47,527	218.01	86	0.00		0.00	0.00		0.00
Kluber Syntheso Glep 1	HVS Pack	8.06	--	0.00	0.00	0.00%	100.00%	248	1.00	86	0.00		0.00	0.00		0.00
								Total for All Products (lb/year):			**2,520.43**		**2,520.43**	**6.53**		**6.53**
								Total for All Products (lb/hour):			**0.29**		**0.29**	**0.0007**		**0.00074**
								Total for All Products (ton/year):			**1.26**		**1.26**	**0.0033**		**0.00326**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will form the cells into a module (8-12 cells) and initial testing will be conducted.
[3]VOC Emissions are not controlled.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
USEDNMP STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID USEDBATT STORE
Unit ID: USB1

VOC/CO2/H2 Emissions

The Used Battery Storage will have similar emissions to the Formation process. Used Batteries will be sent to the storage room for discharging which will create the gas emissions similar to the discharging during Formation.

Calculate vent-gas released during formation

From research conducted by others, calculate the total gas amount (by weight) emitted per cell
Possible Amount of Gas Emitted during Formation from 1 Cell (used Worst Case Value)

Device (LIB Cells)	Total Gas Emission Amount/mmol/cell[1]
ICR18650-32A (NCA[2])	6.2
INR18650-35E (NCA[2])	3.69
INR18650-MJ1 (NCA[2])	1.64

[1] *1st Venting Condition of a damaged cell conservatively represents LIB Formation initial charging/discharging*
[2] *Table 1 "Holistic methodology for characterisation of thermally induced…….RSC Advances, 2017"*

Formation Pollutants Molecular Weights

Formation Pollutants	Molecular Weight		
	g/mol	g/mmol	lb/mmol
H2	2.016	0.002016	4.44053E-06
CO2	44.01	0.04401	9.69383E-05
CO	28.01	0.02801	6.1696E-05
CH4	16.04	0.01604	3.53304E-05
VOCs	78.95	0.07895	0.000173899

Formation Gas Composition	Percent by Weight[3]	Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate
	(%)	(lb/cell[4])	(lb/hr)	(lb/yr)	(tons/yr)	(lb/hr)	(lb/yr)	(tons/yr)
H2	2.4%	6.69E-07	2.79E-06	0.02	0.00	2.79E-06	0.02	0.00001
CO2	82.2%	4.94E-04	2.06E-03	18.03	0.01	2.06E-03	18.03	0.00902
CO	0.0%	0.00E+00	-	-	-	-	-	-
CH4	0.0%	0.00E+00	-	-	-	-	-	-
VOCs	15.4%	1.66E-04	6.91E-04	6.05	0.00303	2.07E-04	1.82	0.00091
Total	100.0%							

[3]Formation Gas Composition emission percent by weight from "Table 1, "Detection of Li-ion battery failure…..etransportion 7 (2021) 100100"
[4]Annual # of LIB Cells Sent to Used Battery Storage at Kokomo Indian: *36,500 cells / yr* 4.17
[5]Control Efficiency of the CAT Towers= *70%*
[6]Assumed that CAT Towers will not destroy CO2 or H2 - 0% control efficiency (conservative assumption)

Table 1, "Detection of Li-ion battery failure and venting with Carbon Dioxide Sensors, Ting Cai, Puneet Valecha, Vivian Tran, Brian Engle, Anna Stefanopoulou, Jason Siegel, eTransportation 7 (2021) 100100"
Table 1, "Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K˙onigseder and Viktor Hacker, RSC Advances, 2017"
"Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K˙onigseder and Viktor Hacker, RSC Advances, 2017"

Appendix A: Emission Calculations
PLANT 2 CATHODEMIX

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID CATHODEMIX
Criteria Pollutant Emission Rates

MATERIALS SPECIFICATION AND THROUGHPUT

Material Name[1]	Process	Physical Characteristics						Process Information		
		Density	Molecular Weight	VP	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	0	0	86
Nickel Cobalt Aluminium Oxide (NCA)	Cathode Mixing, Cathode coating	38.66	244.15	0.00	0.00	0.00%	100.00%	2,327,797	45,000	86
PVDF (Poly Vinylene Fluoride)	Cathode Mixing, Cathode coating	14.54	64.03	517.30	0.00	0.00%	100.00%	68,770	500	86
LCNT - Binder Solution for Cathode Mix (TDS-L)	Binder Solution (Cathode)	8.57	158.24	0.00	7.71	90.00%	0.00%	1,272,594	5,450	86
Oxalic Acid Cathode Additive	HD mixer (Additive)	15.85	0.20	0.54 mmHg	0.00	0.00%	100.00%	3,155	25	0
NMP (N-Methyl-2-Pyrrolidone)	Cathode mixing & coating	8.62	99.13	0.00	8.62	100.00%	0.00%	0	0	104

VOC AND HAP EMISSIONS

CATHODE MIX TANKS							VOC Emissions[2], Uncontrolled				ACT Control Efficiency[3]	VOC Emissions[2], Controlled			
Tank Types	Contents	Capacity (gal)	Combined Throughput (gal)[4]	Quantity	Tank Throughput (gal)	EF Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr	%	tank lb/yr	lb/hr	lb/yr	ton/yr
Binder Mixer Tanks	NMP & PVDF	528	15,009,515	8	1,876,189	TankESP	849.17	0.78	6,793.36	3.40	70%	254.75	0.23	2,038.01	1.02
Binder Storage Tanks	NMP & PVDF	528	15,009,515	16	938,095	TankESP	421.77	0.77	6,748.27	3.37		126.53	0.23	2,024.48	1.01
Coater Buffer Tanks	Cathode Slurry	528	22,014,621	4	5,503,655	TankESP	5.32	2.43 E-03	21.27	0.01		1.60	7.28 E-04	6.38	3.19 E-03
Diesel Tanks	Diesel	500	372,000	1	372,000	TankESP	4.74	5.41 E-04	4.74	2.37 E-03		1.42	1.62 E-04	1.42	7.11 E-04
EMF Buffer Tanks	Cathode Slurry	528	22,014,621	14	1,572,473	TankESP	1.52	2.43 E-03	21.24	0.01		0.46	7.28 E-04	6.37	3.19 E-03
HD Mixer Tanks	NMP, PVDF, Oxalic Acid, Binder Soln, NCA (Cathode Slurry)	634	22,014,621	14	1,572,473	TankESP	24.79	0.04	347.09	0.17		7.44	0.01	104.13	0.05
Used NMP Tanks	Used NMP	7,925	14,361,805	2	7,180,903	TankESP	7.58	1.73 E-03	15.16	7.58 E-03		2.27	5.19 E-04	4.55	2.27 E-03
NMP Storage Tanks	Raw NMP	5,283	14,361,805	2	7,180,903	TankESP	6.97	1.59 E-03	13.95	6.97 E-03		2.09	4.78 E-04	4.18	2.09 E-03
Slurry Storage Tank	Cathode Slurry	528	22,014,621	28	786,236	TankESP	0.76	2.43 E-03	21.24	0.01		0.23	7.28 E-04	6.37	3.19 E-03
Total for all Units							**1,322.62**	**1.60**	**13,986.33**	**6.99317**		**396.78**	**0.48**	**4,195.90**	**2.10**

[2]Tank VOC emissions calculated using Breeze TankESP software.
[3]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).

[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

TankESP Throughput: Data Source:

PARTICULATE EMISSIONS

CATHODE MIXING				Particulate Emissions, Uncontrolled			Baghfilter Control Efficiency	Particulate Emissions, Controlled			Nickel Emissions, Uncontrolled			Nickel Emissions, Controlled			Cobalt Emissions, Uncontrolled			Cobalt Emissions, Controlled		
Powder Material Used in Cathode Mixing	Total Annual Throughput (tons)	EF Basis	PM Emission Factor	lb/hr	lb/yr	ton/yr	%	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr	lb/hr	lb/yr	ton/yr
Nickel Cobalt Aluminium Oxide (NCA)	45,000	Similar Facility	##########	51.37	450,000.00	225.00	98%	1.03	9,000.00	4.50	10.79	94,500.00	47.25	0.22	1,890.00	0.95	5.65	49,500.00	24.75	0.11	990.00	0.50
PVDF (Poly Vinylene Fluoride)	500	Similar Facility	##########	0.57	5,000.00	2.50		0.01	100.00	0.05	--	--	--	--	--	--	--	--	--	--	--	--
Oxalic Acid Cathode Additive	25		##########	0.03	250.00	0.13		5.71 E-04	5.00	2.50 E-03												
Total				**51.97**	**455,250.00**	**227.63**		**1.04**	**9,105.00**	**4.55**	**10.79**	**94,500.00**	**47.25**	**0.22**	**1,890.00**	**0.95**	**5.65**	**49,500.00**	**24.75**	**0.11**	**990.00**	**0.50**

[7]Most baofilter control efficiencies are > 99%. Tetra Tech is usino a conservative value for control efficiencv of 98%.
[8]LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021

Unlimited PTE

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#5-8)	0.63	0.63	0.63	-	-	-	-	02-PEF-03-05
Binder Silos (#9-16)	0.63	0.63	0.63	-	-	-	-	
Binder Mixer (#9-16)	0.63	0.63	0.63	3.40			-	
Binder Storage Tank (#17-32)	-	-	-	3.37			-	
Cathode Inlet (#15-28)	56.25	56.25	56.25	-	24.00	8.25	15.75	
Cathode Silo (#15-28) & Cathode Mixer Hopper (#15-28	112.50	112.50	112.50	-	48.00	16.5	31.50	
HD Mixers (#15-28)	57.00	57.00	57.00	0.17	-		-	
EMR Buffer Tanks (#15-28)	-	-	-	0.01	-		-	
Slurry Storage Tank (#29-56)	-	-	-	0.01	-		-	
Coater Buffer Tank (#6-10)	-	-	-	0.01	-		-	
NMP Supply Tank (#5-8)	-	-	-		-		-	
Total	227.63	227.63	227.63	6.98	72.00	24.75	47.25	

Controlled

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#5-8)	0.01	0.01	0.01	-	-	-	-	02-PEF-03-05
Binder Silos (#9-16)	0.01	0.01	0.01	-	-	-	-	
Binder Mixer (#9-16)	0.01	0.01	0.01	3.40			-	
Binder Storage Tank (#17-32)	-	-	-	3.37			-	
Cathode Inlet (#15-28)	1.13	1.13	1.13	-	0.48	0.17	0.32	
Cathode Silo (#15-28) & Cathode Mixer Hopper (#15-28	2.25	2.25	2.25	-	0.96	0.33	0.63	
HD Mixers (#15-28)	1.14	1.14	1.14	0.17	-		-	
EMR Buffer Tanks (#15-28)	-	-	-	0.01	-		-	
Slurry Storage Tank (#29-56)	-	-	-	0.01	-		-	
Coater Buffer Tank (#6-10)	-	-	-	0.01	-		-	
NMP Supply Tank (#5-8)	-	-	-		-		-	
Total	4.55	4.55	4.55	6.98	1.44	0.50	0.95	

CE: 0.895
0.105

limited

CathodeMix	PM	PM10	PM2.5 *	VOC	Total HAPs**	Cobalt	Nickel	Stack
Binder Booths (#5-8)	0.07	0.07	0.07	-	-	-	-	02-PEF-03-05
Binder Silos (#9-16)	0.07	0.07	0.07	-	-		-	
Binder Mixer (#9-16)	0.07	0.07	0.07	3.40			-	
Binder Storage Tank (#17-32)	-	-	-	3.37			-	
Cathode Inlet (#15-28)	5.91	5.91	5.91	-	2.52	0.87	1.65	
Cathode Silo (#15-28) & Cathode Mixer Hopper (#15-28	11.81	11.81	11.81	-	5.04	1.73	3.31	
HD Mixers (#15-28)	5.99	5.99	5.99	0.17	-		-	
EMR Buffer Tanks (#15-28)				0.01	-		-	
Slurry Storage Tank (#29-56)				0.01	-		-	
Coater Buffer Tank (#6-10)				0.01	-		-	
NMP Supply Tank (#5-8)				0.00	-		-	
Total (TPY)	23.90	23.90	23.90	6.98	7.56	2.60	4.96	
Total (lbs/hr)	5.46	5.46	5.46	1.59	1.73	0.59	1.13	

Appendix A: Emission Calculations
PLANT 2 ANODEMIX

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ANODEMIX

MATERIALS SPECIFICATION AND THROUGHPUT

Material Name	Physical Characteristics						Process Information			Process
	Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Max Volume Used	Annual Usage	Process Temp.	
	lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	
MICELLCMC GB-S01 (CMC-2500)	13.29	240.21	0.00	0.00	0.00%	100.00%	41,369	275	86	CMC Booth (#5-8) CMC Silo (#5-8) CMC Mixer (#13-24) CMC Storage Tank (#25-48) PD Mixer (#25-48)
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	16.62	12.01	0.00	0.00	0.00%	100.00%	3,656,866	30,386	86	Anode Inlet (#49-96) Anode Silo (#49-96) Anode Mixer Hopper (#25-48) PD Mixer (#25-48)
Styrene Butadiene Rubber (SBR) - HCM-815)	8.40	158.24	0.00	0.041	0.49%	48.00%	15,893	67	86	PD Mixer (#25-48)

VOC AND HAP EMISSIONS

ANODE MIX TANKS							VOC Emissions[2], Uncontrolled			
Tank Types	Contents	Capacity (gal)	Total Throughput (tpy)[6]	Quantity	Tank Throughput (tons/yr/tank)	EF Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr
PD Mixer (24)	VOC = SBR	608	67	24	3	Mass Balance	27.15	0.07	651.61	0.33
Total for all Units		**608**	**67**	**24**	**3**		**27.15**	**0.07**	**651.61**	**0.33**

[2]VOC emissions calculated throughput times emission factor.
[3]Water is assumed to have no VOC emissions
[4]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]
[5]Based on MTI formula estimate that SBR is 2.25% of the total volume of slurry.
VOC content for SBR based on SDS from Euclid chemical dated 05.2021

PARTICULATE EMISSIONS

ANODE MIXING				Particulate Emissions, Uncontrolled			Bagfilter Control Efficiency[7]	Particulate Emissions, Controlled		
Powder Material Used in Anode Mixing	Total Annual Throughput (tons)	Emission Calculation Basis[8]	PM Emission Factor[8]	lb/hr	lb/yr	ton/yr	%	lb/hr	lb/yr	ton/yr
MICELLCMC GB-S01 (CMC-2500)	275	Similar Facility	0.5%	0.31	2,750	1	98.00%	6.28 E-03	55.00	0.0
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	30,386	Similar Facility	0.5%	34.69	303,860	152		0.69	6,077.20	3.0
Total				**35.00**	**306,610**	**153.305**		**0.70**	**6,132.20**	**3.1**

[7]Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%.
[8]LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021

Unlimited PTE

Emissions Unit	PM	PM10	PM2.5 *	VOC	Stack
CMC Booth (#5-8) & Anode Conductive Powder Booth (#5-8)	0.34	0.34	0.34	-	
CMC Silo (#5-8) & Anode Conductive Powder Silo (#9-16)	0.34	0.34	0.34	-	
CMC Mixer (#13-24)	0.34	0.34	0.34	-	
CMC Storage Tank (#25-48)	-	-	-	-	
PD Mixer (#25-48)	38.33	38.33	38.33	0.33	02-PEF-01-02
Anode Inlet (#17-32)	37.98	37.98	37.98	-	
Anode Silo (#17-32) & Anode Mixer Hopper (#25-48)	75.97	75.97	75.97		
Storage Tank (#49-96)	-	-	-	-	
Coater Buffer Tank (#11-20)	-	-	-	-	
total TPY	153.31	153.31	153.31		

Controlled PTE

Emissions Unit	PM	PM10	PM2.5 *	VOC	Stack
CMC Booth (#5-8) & Anode Conductive Powder Booth (#5-8)	0.01	0.01	0.01	-	
CMC Silo (#5-8) & Anode Conductive Powder Silo (#9-16)	0.01	0.01	0.01	-	
CMC Mixer (#13-24)	0.01	0.01	0.01	-	
CMC Storage Tank (#25-48)	-	-	-	-	
PD Mixer (#25-48)	0.77	0.77	0.77	0.33	02-PEF-01
Anode Inlet (#17-32)	0.76	0.76	0.76	-	
Anode Silo (#17-32) & Anode Mixer Hopper (#25-48)	1.52	1.52	1.52		
Storage Tank (#49-96)	-	-	-	-	
Coater Buffer Tank (#11-20)	-	-	-	-	

CE: 0.75
0.25

limited PTE

Emissions Unit	PM	PM10	PM2.5 *	VOC	Stack
CMC Booth (#5-8) & Anode Conductive Powder Booth (#5-8)	0.09	0.09	0.09	-	
CMC Silo (#5-8) & Anode Conductive Powder Silo (#9-16)	0.09	0.09	0.09	-	
CMC Mixer (#13-24)	0.09	0.09	0.09	-	
CMC Storage Tank (#25-48)	-	-	-	-	
PD Mixer (#25-48)	9.58	9.58	9.58	0.33	02-PEF-01
Anode Inlet (#17-32)	9.50	9.50	9.50	-	
Anode Silo (#17-32) & Anode Mixer Hopper (#25-48)	18.99	18.99	18.99		
Storage Tank (#49-96)	-	-	-	-	
Coater Buffer Tank (#11-20)	-	-	-	-	
total TPY	38.33	38.33	38.33		
Total (lb/hr)	8.75	8.75	8.75		

Appendix A: Emission Calculations

USEDNMP STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

VOC Emissions

Process ID USEDNMP STORE
Criteria Pollutant Emission Rates Solvent recovery tanks

Material Name[1]	Process	Physical Characteristics						Process Information			VOC Emissions
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Recovered NMP[4]		Process Temp.	Uncontrolled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year
NMP (N-Methyl-2-Pyrrolidone), Recovered	Used/Recovered NMP Storage	8.62	99.13 g/mol	0.32 hPa (20 ° C)	8.62	100%	0%	3,590,451	15,469	95.00	See Tank VOC Emissions in Table Below
								Total for All Products (lb/year):			
								Total for All Products (lb/hour):			
								Total for All Products (ton/year):			

Used/Recovered NMP Storage Tank							VOC Emissions, Uncontrolled				ACT Control Efficiency[3]	VOC Emissions, Controlled			
Tank Types	Contents	Capacity (gal)	Maximum Annual Throughput[4] (gal)	Quantity	Maximum Throughput per Tank (gal)	Emission Calculation Basis	lb/yr/tank[3]	lb/hr	lb/yr	ton/yr	%	lb/yr/tank[3]	lb/hr	lb/yr	ton/yr
Used/Recovered NMP Storage Tank	Recovered NMP	7,925	3,590,451	2	1,795,226	TankESP	15.16	3.46 E-03	15.16	7.58 E-03	70%	4.55	1.04 E-03	9.10	4.55 E-03

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).
[3]Tank VOC emissions calculated using BREEZE TanksESP
[4]The maximum annual recovered NMP amount is 99% of the total annual NMP usage for the facility

Appendix A: Emission Calculations
PLANT 2 ANODECOAT-DRYING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ANODECOAT/DRYING
ACline5-ACline8

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]		
		Density	Molecular Weight	VP	VOC As Used / As Applied		Solids	Max Annual Throughput		Process Temp.	Uncontrolled Emissions		Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year		lb/year
Graphite (MC09, MC09Q, MC10Q, MC21, MC21Q) - FSG, CBA-1F	Anode Coat/Drying	16.62	12.01	0.00	0.00	0.00%	100.00%	0	0.00	86	0.00		0.00
Styrene Butadiene Rubber (SBR) - HCM-815)	Anode Coat/Drying	8.40	158.24	0.00	0.04	0.49%	48.00%	301,964	1,268.25	86	12,380.54		12380.54
Isopropyl Alchohol (Clean)	Anode Coat/Drying	6.52	60.10	0.62	6.52	100.00%	0.00%	192	0.63	86	1,250.00		1250.00
CMC2500	Anode Coat/Drying	0.00	0.00	0.00	0.00	--	0.00%	0	0.00	0	0.00		0.00
									Total for All Products (lb/year):		13,630.54		13,630.54
									Total for All Products (lb/hour):		1.56		1.56
									Total for All Products (ton/year):		6.82		6.82

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]Anode Coat Slurry is sprayed on the copper foil substrate and then dried in five (5) furnaces that exhaust directly to the outdoor atmosphere.
[3]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[4]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
PLANT 2 SLITTING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput(each)	Control	Stack
AS5	3,937 in/min	ASBF17- ASBF20	02-DCEF-1
AS6	3,937 in/min	ASBF21- ASBF24	
AS7	3,937 in/min	ASBF25-ASBF28	
AS8	3,937 in/min	ASBF29- ASBF32	
CS5	3,937 in/min	CSBF17- CSBF20	02-DCEF-2
CS6	3,937 in/min	CSBF21- CSBF24	
CS7	3,937 in/min	CSBF25-CSBF28	
CS8	3,937 in/min	CSBF29- CSBF32	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Anode Slitting	Dry	Brass	**0.000472**	**0.0393**	**15,748**	**bagfilter**	**98**	8.70	0.3143049	5	2.91512E-07	944,880	0.28	0.01	1.21	0.02
Cathode Slitting	Dry	Aluminum	**0.000472**	**0.0393**	**15,748**	**bagfilter**	**98**	2.80	0.1011556	5	9.38198E-08	944,880	0.09	0.002	0.39	0.01

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.

2. Copper substrate that is used for the Anode has used brass metal to estimate PM emissions as this is a metal that has similar properties to copper.

3. Metal cutting rate (inches/minute) is assumed to be 100 meters per minute per line (or 3,937 inches per minute per line X 4 production lines) similar to the LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021

4. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)

5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)

6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

Specific Gravity/Fume Generation Table
Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
PLANT 2 TERMINAL WELD

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (?)	Control ID	Stack ID
LPW5-1 to LPW5-2	897 cells/hr	LPWBF9 to LPWBF10	02-DCEF-7
LPW6-1 to LPW6-2	897 cells/hr	LPWBF11 to LPWBF12	
LPW7-1 to LPW7-2	897 cells/hr	LPWBF13 to LPWBF14	
LPW8-1 to LPW8-2	897 cells/hr	LPWBF15 to LPWBF16	

Particulate Emissions																		
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions					
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)	Limited %CE	Limited (lb/hr)	Limited (ton/yr)
Anode Terminal Weld	Dry	Brass	**0.4606299**	**0.114173**	**76**	**bagfilter**	**98**	8.7	0.31	5	8.26E-04	4.560	3.7688	0.0754	16.5073	0.3301	90	0.3769	1.650726626
Cathode Terminal Weld	Dry	Aluminum	**0.4606299**	**0.114173**	**76**	**bagfilter**	**98**	2.8	0.10	5	2.66E-04	4.560	1.2129	0.0243	5.3127	0.1063	90	0.1213	0.531268339

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing which is the metal type selected for can-cap welding.
3. Metal welding rate (inches/minute) is assumed to be 6.46 cm per cell for both anode and cathode combined and 2,619,240 cells per month
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)

2619240 cells per month
Weld per cell is 6.46 cm in length (for terminal weld - for both anode and cathode combined

Total laser weld speed (inches/minute) = 76 inches/min for all 4 lines

Specific Gravity/Fume Generation Table
Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
PLANT 2 ASSEMBLY (General)

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID ASSEMBLY
Criteria and HAP Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
DEMAK DK 001 (Gap Filler Hardener)	Assembly	10.10	250.00	<0.00001hPa (20 C)	0.10	1.00%	--	2,972	15	86	300.00	70%	90.00	60.00	70%	18.00
DMC (Di Methyl Carbonate)	Assembly, Innovation	8.81	90.08	1.10	0.00	0.00%	0.00%	6,798	30	86	0.00		0.00	0.00		0.00
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2,493.33		748.00	0.00		0.00
P-80 Grip-It	Pack/Assembly	8.30	18.00	0.46	0.01	0.10%	3.00%	120	0.50	86	1.00		0.30	0.00		0.00
SEPUR 114FR THIXO - THIXO/L -FV THIXO (Gap Filler Resin)	Assembly	12.67	362.40	0.00	0.00	0.00%	62.00%	15,783	100	86	0.00		0.00	0.00		0.00
Henkel Technomelt PS 1753 (Hotmelt Resin)	Assembly	8.14	--	Negligible	0.08	1.02%	100.00%	4,912	20	86	408.98		122.69	0.00		0.00
										Total for All Products (lb/year):	**3,203.32**		**960.99**	**60.00**		**18.00**
										Total for All Products (lb/hour):	**0.37**		**0.11**	**0.01**		**0.00**
										Total for All Products (ton/year):	**1.60**		**0.48**	**0.03**		**0.01**

[1] This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2] Assembly includes general battery assembly, notching, terminal welding, can-cap welding, and electrolyte filling.
[3] VOC Emissions are controlled by the Activated Carbon Tower (APC ID: CAT-01a, CAT-01b, CAT-01c Standby), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).
[4] VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5] HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
PLANT 2 NOTCHING-STACKING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control ID	Stack ID
S5_1 to S5_32	897 cells/hr	S5_BF1 to S5_BF32	02-DCEF-3
S6_1 to S6_32	897 cells/hr	S6_BF1 to S6_BF32	02-DCEF-4
S7_1 to S7_25	897 cells/hr	S7_BF1 to S7_BF25	02-DCEF-5
S8_1 to S8_25	897 cells/hr	S8_BF1 to S8_BF25	02-DCEF-6

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed - Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Anode Notching	Dry	Brass	**0.000472**	**0.0393**	**15,478**	**bagfilter**	**98**	8.7	0.3143049	5	2.91512E-07	928,685	2.71E-01	5.41E-03	1.19E+00	2.37E-02
Cathode Notching	Dry	Aluminum	**0.000472**	**0.0393**	**15,478**	**bagfilter**	**98**	2.8	0.1011556	5	9.38198E-08	928,685	8.71E-02	1.74E-03	3.82E-01	7.63E-03
												Total:	3.58E-01	7.16E-03	1.57E+00	3.13E-02

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Copper substrate that is used for the Anode has used brass metal to estimate PM emissions as this is a metal that has similar properties to copper.
3. There is not a representative emission factor for the notching process (which is cutting of the metal subtrate aluminum and copper using a die (die cutter)). We believe it is conservative to use plasma / laser cutting emission factors to estimate the PM emissions from Notching.
5. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
6. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
7. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%
4. Working parameter :

Cells Per month	2619240	
Cut length per cell :	657.43	cm
Total laser weld speed (inches/minute) =	15,478	inches/min

Note: When a range was listed for the density the highest number in the range was used.

Metal	Dry	Semidry	Wet	Specific Gravity
Aluminum	5	0.5	0.05	2.8
Brass	5	0.5	0.05	8.7
Stainless Steel, 35mm	1	0.1	0.01	7.7
Stainless Steel, 8mm	7	0.7	0.07	7.7
Steel	5	0.5	0.05	7.83

Appendix A: Emission Calculations
PLANT 2 CAN-CAP WELD

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (?)	Control ID	Stack ID
CanCap5-1 to CanCap5-2	897 cells/hr	CANCAPBF9 to CANCAPBF10	02-DCEF-8
CanCap6-1 to CanCap6-2	897 cells/hr	CANCAPBF11 to CANCAPBF12	
CanCap7-1 to CanCap7-2	897 cells/hr	CANCAPBF13 to CANCAPBF14	
CanCap8-1 to CanCap8-2	897 cells/hr	CANCAPBF15 to CANCAPBF16	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
CAN-CAP WELD	Dry	Aluminum	0.0354331	0.0393701	152	bagfilter	98	2.8	0.1012	5	7.05563E-06	9,125	0.0644	0.0013	0.2820	0.0056

Sources
AP-42 Chapter 12 Related Emission Factor Documents
https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing which is the metal type selected for can-cap welding.
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

3. Working parameter :

Cells per month	2619240		
Weld length per cell :	6.46	cm	
Total laser weld speed (inches/minute) =	152	inches/min	**for all 4 lines**

Appendix A: Emission Calculations
PLANT 2 ELECTROLYTE FILLING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control	Stack
EFM33-EFM40	897 cells per hour	CAT-04a, CAT-04, CAT-04c, CAT-04d, & CAT-04e Standby	S-4a, S-4b, S-4c, S-4d, and S-4e Standby
EFM41-EFM48	897 cells per hour		
EFM49-EFM56	897 cells per hour		
EFM57-EFM64	897 cells per hour		

VOC Emissions

Calculate VOC Emissions of Electrolyte Solution from filling each battery cell.
Use USEPA Equation for Evaporative Losses from a Spill (see references below)

QR = (0.284 x u^0.78 x MW^2/3 x A x VP / (82.05 x T)

u =	**0.5**	**m/s**
MW =	**0.22**	**lb/mol**
A =	**0.000844962**	**sq ft.**
VP =	**55.364**	**mm Hg at 25 deg C**
T =	**294**	**K**

QR = lb/min per cell (calculation is for 1 cell)
u = assumed to be conservative value of air motion (speed) across electrolyte Ssel pin = 10 feet per min = 0.5 m/s
MW = molecular weight of electrolyte solution = used MW of highest concentration component = DMC (dimethyl carbonate) = 0.22 lb/mol
A = area of electrolyte filling pin hole = assumed (conservative - large) diameter of electrolyte filling hole of cylindrical cell = 1 cm = 0.0328 feet = 0.000845 sq. feet
VP = vapor pressure for the electrolyte is not available so we used DMC's vapor pressure = 55.364 mmHg @ 25 deg C (based on vapor pressure of dimethyl ca
T = temperature at the surface of the cell electrolyte filling hole is assumed to be room temperature = 70 deg F or 294 deg K.

2.799 Kpa (kilo pascels)

QR = 0.284 x ($0.5^{0.78}$m/s)*($0.22^{0.6667}$lb/mol) x 0.000845 sq. ft x 55.364mmHg ÷ (82.05*294K)
QR = 1.17546E-07 lb VOC/min/cell

(Multiply QR by length of time that the filling hole is open which according to Patent No. US6387561B1[1] can be up to 2 hours)

QR =	**1.41055E-05**	**lb VOC/cell**		**No. of Cells / yr**	**31,430,880**	**cells produced per year**	**7,857,720 cells / yr / line**
QR =	**443.35**	**lb VOC/year**	**Uncontrolled**				**897.00 cells/hr/line**
QR =	**0.22**	**tons VOC/year**	**Uncontrolled**		**58.2MM**		
QR =	**0.05**	**lb VOC/hr**	**Uncontrolled**		**62. MM**		
QR =	**133.00**	**lb VOC/year**	**Controlled**				
QR =	**0.07**	**tons VOC/year**	**Controlled**				
QR =	**0.02**	**lb VOC/hr**	**Controlled**				

[1] *Patent No. US6387561B1Electrolyte-solution filling method and battery structure of lithium secondary battery states:*
"It is confirmed by FIG. 3 that, according to a conventional electrolyte solution filling method, ***approximately two hours*** *of the electrolyte solution impregnation time period were required by the time when the alternate impedance dropped to a certain constant value, while, according to the present invention, the equivalent impregnation processing could be implemented in about 30 minutes and the cut in time for producing the battery can be attained."*

Appendix A: Emission Calculations
PLANT 2 TAPING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (?)	Control ID	Stack ID
TM-9	3,588 cells/hr	TMBF33-TMBF36	02-EF-301-302
TM-10		TMBF5-TMBF8	
TM-11		TMBF9-TMBF12	
TM-12		TMBF13-TMBF16	
TM-13		TMBF17-TMBF20	
TM-14		TMBF21-TMBF24	
TM-15		TMBF25-TMBF60	
TM-16		TMBF61-TMBF64	

Particulate Emissions

INPUT DATA (PUT YOUR INFORMATION BELOW)							Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (inches)	Kerf (width of cut in inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
TAPING	Dry	Aluminum	0.000472	0.0393	15,478	BagFilter	98	2.8	0.1011556	5	9.38198E-08	928.685	0.087	0.002	0.382	0.008

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing "seal" which is the metal type selected for cylindrical cans.
3. Metal cutting rate (inches/minute) is assumed to be 100 meters per minute per line - conservative for seal welding - (or 3,937 inches per minute per line X 4 production lines) similar to the LG Energy Solution Michigan, Inc.; 1 LG Way, Holland, Allegan County, Michigan, PTI Application for LIB Production Phase II, November 10, 2021
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

Cells per month	2619240		
Cut length per cell :	657.43	cm	
Total laser cut speed (inches/minute) =	15,478	inches/min	for all 4 lines

Appendix A: Emission Calculations
PLANT 2 SEALING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control ID	Stack ID
SPW5-1 to SPW5-2	897 cells/hr	SPWBF5	03-EF-301-30
SPW6-1 to SPW6-2	897 cells/hr	SPWBF6	
SPW7-1 to SPW7-2	897 cells/hr	SPWBF7	
SPW8-1 to SPW8-2	897 cells/hr	SPWBF8	

Particulate Emissions																
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed -Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
SEAL	Dry	Aluminum	0.000472	0.00472441	3	BagFilter	98	2.8	0.1011556	5	1.12785E-08	170	1.91E-06	3.82E-08	8.37E-06	1.67E-07

Sources
42 Chapter 12 Related Emission Factor Docum
ttps://www3.epa.gov/ttn/chief/efdocs/welding.pd

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
2. Aluminum alloy is used for the cylindrical can casing "seal" which is the metal type selected for cylindrical cans.
3. Metal cutting rate (inches/minute) is assumed to be 1 cm in diameter for each cell - conservative for seal welding would be seal weld of the perimeter which equals
4. Aluminum foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

Cells per month 2619240
Weld length per cell : 0.12 cm
Total laser weld speed= 3 inches/min for all 4 lines

Appendix A: Emission Calculations
PLANT 2 FORMATION

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput	Control ID	Stack
HVC4-HVC8	3,588 cells/hr total	CAT-05a, CAT-05b & CAT-05c /Standby	S-5a, S-5b, S-5c, S-5d, and S-5e Standby

Criteria Pollutant Emission Rates

The Formation process includes a round of aging in electrolyte solution, charging/discharging, a second round of aging, output testing, insulating, visual inspections, and packaging.

VOC/CO2/H2 Emissions

Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017

Calculate vent-gas released during formation

From research conducted by others, calculate the total gas amount (by weight) emitted per cell

Possible Amount of Gas Emitted during Formation from 1 Cell (used Worst Case Value)

Device (LIB Cells)	Total Gas Emission Amount/mmol/cell[1]
ICR18650-32A (NCA[2])	6.2
INR18650-35E (NCA[2])	3.69
INR18650-MJ1 (NCA[2])	1.64

[1] *1st Venting Condition of a damaged cell conservatively represents LIB Formation initial charging/discharging*
[2] *Table 1 "Holistic methodology for characterisation of thermally induced…….RSC Advances, 2017"*

Formation Pollutants Molecular Weights

Formation Pollutants	Molecular Weight		
	g/mol	g/mmol	lb/mmol
H2	2.016	0.002016	4.44053E-06
CO2	44.01	0.04401	9.69383E-05
CO	28.01	0.02801	6.1696E-05
CH4	16.04	0.01604	3.53304E-05
VOCs	78.95	0.07895	0.000173899

Formation Gas Composition	Percent by Weight[3]	Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate
	(%)	(lb/cell[4])	(lb/hr)	(lb/yr)	(tons/yr)	(lb/hr)	(lb/yr)	(tons/yr)
H2	2.4%	6.69E-07	2.40E-03	21.03	0.01	2.40E-03	21.03	0.01
CO2	82.2%	4.94E-04	1.77E+00	15,526.11	7.76	1.77E+00	15,526.11	7.76
CO	0.0%	0.00E+00	-	-	-	-	-	-
CH4	0.0%	0.00E+00	-	-	-	-	-	-
VOCs	15.4%	1.66E-04	5.95E-01	5,211.96	2.61	1.78E-01	1,563.59	0.78
Total	100.0%							

[3] *Formation Gas Composition emission percent by weight from "Table 1, "Detection of Li-ion battery failure…..etransportion 7 (2021) 100100"*
[4] *Annual # of LIB Cells Produced at Kokomo Indiana = 31,430,880 cells / yr*
[5] *Control Efficiency of the CAT Towers= 70%*
[6] Assumed that CAT Towers will not destroy CO2 or H2 - 0% control efficiency (conservative assumption)

Table 1, "Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor

HVC : Heating Vacuum Charger

HVC performs the following three treatments simultaneously on the cell where the electrolyte injection has been completed.
1. Heating
2. Connect the vacuum tube (hopper) to discharge gas inside the cell
3. Charge

Table 1, "Detection of Li-ion battery failure and venting with Carbon Dioxide Sensors, Ting Cai, Puneet Valecha, Vivian Tran, Brian Engle, Anna Stefanopoulou, Jason Siegel, eTransportation 7 (2021) 100100"

Appendix A: Emission Calculations
PLANT 2 MODULE TEST

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (per unit)	Venting
SD5- SD8	897cells/hour	indoors
HBB5- HBB8	897cells/hour	
PSA9-PSA16	897cells/hour	
CUS9-CUS16	897cells/hour	

Criteria and HAP Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
Sonderhoff Fermapor K31-B-4	Module, Pack	9.91	250.25	0.04	0.26	2.61%	0.00%	101	0.50	86	26.10	0%	26.10	6.53	0%	6.53
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2493.33		2493.33	0.00		0.00
										Total for All Products (lb/year):	**2,519.43**		**2,519.43**	**6.53**		**6.53**
										Total for All Products (lb/hour):	**0.29**		**0.29**	**0.0007**		**0.00074**
										Total for All Products (ton/year):	**1.26**		**1.26**	**0.0033**		**0.00326**

P = Vapor pressure of product [Pa]
V = Volume displaced [L]
n = moles of gas [mol]
R = Ideal Gas Constant [8,314 L-Pa/mol-K]
T = Temperature [K]

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will form the cells into a module (8-12 cells) and initial testing will be conducted.
[3]VOC Emissions are not controlled in this area.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
FRAME SIDE / BUSBAR WELDING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Unit ID	Throughput (total)	Control Device ID	Stack ID
FSW5	897cells/hour	MBF13	03-EF-301-302
BW5	897cells/hour	MBF14	
FSW6	897cells/hour	MBF15	
BW6	897cells/hour	MBF16	
FSW7	897cells/hour	MBF17	
BW7	897cells/hour	MBF18	
FSW8	897cells/hour	MBF19	
BW8	897cells/hour	MBF20	
FEW5	897cells/hour	MBF21	
FEW6	897cells/hour	MBF22	
FEW7	897cells/hour	MBF23	
FEW8	897cells/hour	MBF24	

Particulate Emissions															
INPUT DATA (PUT YOUR INFORMATION BELOW)								Calculated Data (DO NOT ALTER)					PM/PM2.5/PM10 Emissions			
Unit Identification	Cutting Technique	Metal Type	Metal Thickness (Inches)	Kerf (width of cut in Inches)	Metal Cutting Speed - Feed Rate (inches/minute)	Control Device Type	% CE	Specific Gravity	Density Conversion (lb/in^3)	Fume Generated (% of Particulate Generated)	$PM_{2.5}/PM_{10}$ Emission Factor (lb/inch)	Metal Feed Rate (inches/hr)	Uncontrolled (lb/hr)	Controlled (lb/hr)	Uncontrolled (tons/year)	Controlled (tons/year)
Frame Side Weld	Dry	Aluminum	0.03	0.02	152	bagfilter	98	2.8	0.10	5	4.29687E-06	9,125	0.0392	0.0008	0.1717	0.0034
Busbar Weld	Dry	Aluminum	0.06	0.03	152	bagfilter	98	2.8	0.10	5	9.28991E-06	9,120	0.0847	0.0017	0.3711	0.0074
Frame End Weld	Dry	Aluminum	0.05	0.03	152	bagfilter	98	2.8	0.10	5	6.67149E-06	9,125	0.0609	0.0012	0.2667	0.0053
													0.1848	0.0037	0.8095	0.0162

Sources
AP-42 Chapter 12 Related Emission Factor Documents https://www3.epa.gov/ttn/chief/efdocs/welding.pdf

1. Plasma/laser cutting emission calculation tool developed by Kansas State University Pollution Prevention Institute (June 2017) that is based on AP-42 Chapter 12, Related Emission Factors: Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, March 1994.
3. Metal welding rate (inches/minute) is assumed to be 25 cm per cell and 675,000 cells per month - conservative for can-cap welding - (or 152 inches per minute for all 4 production lines)
4. Aluminum and copper foil thickness will be 12 micrometers = 0.000472 inches (from Samsung-SDI Korea)
5. Kerf (inches) for the laser being used is 0.0393 inches (assumed to be the same for all cutting at this Facility)
6. Most bagfilter control efficiencies are > 99%. Tetra Tech is using a conservative value for control efficiency of 98%

cells per month **2,619,240**
weld length per cell **6.46**
Total laser weld speed= **152** **inches/min for all 4 lines**

Appendix A: Emissions Calculations
PLANT 2 Natural Gas Combustion (≤ 100 MMBtu/hr)

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Emission Unit	Heat Input Capacity MMBtu/hr	HHV mmBtu/mmscf	Potential Throughput MMCF/yr
BOILER-03	12.50	1020	107.4
BOILER-04	12.5	1020	107.4
HOT WATER	13.5	1020	115.9
SPACE	13.5	1020	115.9

		Pollutant						
		PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Unit	Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	100	5.5	84
BOILER-03	Potential Emission in tons/yr	0.10	0.41	0.41	0.03	5.37	0.30	4.51
BOILER-04	Potential Emission in tons/yr	0.10	0.41	0.41	0.03	5.37	0.30	4.51
HOT WATER	Potential Emission in tons/yr	0.11	0.44	0.44	0.03	5.80	0.32	4.87
SPACE	Potential Emission in tons/yr	0.11	0.44	0.44	0.03	5.80	0.32	4.87
Total		**0.42**	**1.70**	**1.70**	**0.13**	**22.33**	**1.23**	**18.76**

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology
All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu; MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu
Potential Emission (tons/yr) = Potential Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Hazardous Air Pollutants (HAPs)

		HAPs - organic					HAPs - Metals						
		Benzene	Dichlorobe	Formaldehyde	Hexane	Toluene	Lead	Cadmium	Chromium	Manganese	Nickel	Total Haps	Highest single hap
Emission Unit	Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03		
BOILER-01	Potential Emission in tons/yr	1.1E-04	6.4E-05	4.0E-03	9.7E-02	1.8E-04	2.7E-05	5.9E-05	7.5E-05	2.0E-05	1.1E-04	1.0E-01	9.7E-02
BOILER-02	Potential Emission in tons/yr	1.1E-04	6.4E-05	4.0E-03	9.7E-02	1.8E-04	2.7E-05	5.9E-05	7.5E-05	2.0E-05	1.1E-04	1.0E-01	9.7E-02
HOT WATER	Potential Emission in tons/yr	1.2E-04	7.0E-05	4.3E-03	1.0E-01	2.0E-04	2.9E-05	6.4E-05	8.1E-05	2.2E-05	1.2E-04	1.1E-01	1.0E-01
SPACE	Potential Emission in tons/yr	1.2E-04	7.0E-05	4.3E-03	1.0E-01	2.0E-04	2.9E-05	6.4E-05	8.1E-05	2.2E-05	1.2E-04	1.1E-01	1.0E-01
	Total	4.7E-04	2.7E-04	1.7E-02	4.0E-01	7.6E-04	1.1E-04	2.5E-04	3.1E-04	8.5E-05	4.7E-04		

Potential Emission of Combined HAPs (tons/yr)	**4.2E-01**	
Potential Emission of Highest Single HAP (tons/yr)	**4.0E-01**	**Hexane**

Methodology
Methodology is the same as above.
The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A: Emission Calculations
Reciprocating Internal Combustion Engines - Natural Gas
PLANT 2 4-Stroke Rich-Burn (4SRB) Engines

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Maximum Output Horsepower Rating (hp)	700
Brake Specific Fuel Consumption (BSFC) (Btu/hp-hr)	7600
Maximum Hours Operated per Year (hr/yr)	500
Potential Fuel Usage (MMBtu/yr)	2660
High Heat Value (MMBtu/MMscf)	1020
Potential Fuel Usage (MMcf/yr)	2.61

		Potential Emissions (tons/yr)										
Criteria Pollutants	Emission Factor (lb/MMBtu)	EMGEN-11	EMGEN-12	EMGEN-13	EMGEN-14	EMGEN-15	EMGEN-16	EMGEN-17	EMGEN-18	EMGEN-19	EMGEN-20	**Total (ton/year)**
PM*	9.50E-03	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	0.0126	**0.1264**
PM10*	1.94E-02	0.03	0.03	0.05	0.06	0.08	0.11	0.14	0.19	0.25	0.34	**1.2766**
PM2.5*	1.94E-02	0.03	0.03	0.05	0.06	0.08	0.11	0.14	0.19	0.25	0.34	**1.2766**
SO2	5.88E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	**0.0078**
NOx	2.21E+00	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	**29.3930**
VOC	2.96E-02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	**0.3937**
CO	3.72E+00	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	**49.4760**

*PM emission factor is for filterable PM-10. PM10 emission factor is filterable PM10 + condensable PM.
PM2.5 emission factor is filterable PM2.5 + condensable PM.

Hazardous Air Pollutants (HAPs)

		Potential Emissions (tons/yr)										
Pollutant	Emission Factor (lb/MMBtu)	EMGEN-11	EMGEN-12	EMGEN-13	EMGEN-14	EMGEN-15	EMGEN-16	EMGEN-17	EMGEN-18	EMGEN-19	EMGEN-20	**Total (ton/year)**
Acetaldehyde	2.79E-03	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.037
Acrolein	2.63E-03	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.035
Benzene	1.58E-03	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.021
1,3-Butadiene	6.63E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.009
Formaldehyde	2.05E-02	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.273
Methanol	3.06E-03	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.041
Total PAH**	1.41E-04	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
Toluene	5.58E-04	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.007
Xylene	1.95E-04	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
	Total	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	

HAP pollutants consist of the nine highest HAPs included in AP-42 Table 3.2-3.
**PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

total HAPS 0.427
Highest single HAP 0.273 Formaldehyde

Methodology
Emission Factors are from AP-42 (Supplement F, July 2000), Table 3.2-3
Potential Fuel Usage (MMBtu/yr) = [Maximum Output Horsepower Rating (hp)] * [Brake Specific Fuel Consumption (Btu/hp-hr)] * [Maximum Hours Operated per Year (hr/yr)] / [1000000 Btu/MMBtu]
Potential Emissions (tons/yr) = [Potential Fuel Usage (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2000 lb/ton]

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide

Appendix A: Emission Calculations

PLANT 2 COOLINGTOWERS

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Appendix A: Emission Calculations
Mechanical Draft Cooling Tower

Pre-Modification:

Cooling Amount 1,538 tons
3 gpm/ton

Circulating water flow rate (W_c) per tower	4,615 gal/min
Drift loss	0.020%
Blowdown/drift TDS	350 mg/l
PM10 Mass Fraction	55.840%
PM2.5 Mass Fraction	0.21%

	Total Liquid Drift	PM		PM10		PM2.5	
	(lb/10^3 gal)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Cooling Tower 1	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 2	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 3	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 4	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 5	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 6	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 7	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 8	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 9	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 10	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 11	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 12	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 13	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 14	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 15	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 16	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 17	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 18	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 19	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 20	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 21	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 22	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 23	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 24	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 25	1.67	0.16	0.71	0.09	0.40	0.00	0.00
Cooling Tower 26	1.67	0.16	0.71	0.09	0.40	0.00	0.00
	Total	**4.20**	**18.41**	**2.35**	**10.28**	**0.01**	**0.04**

Post-Modification:

Cooling Amount 1,833 tons
3 gpm/ton

Circulating water flow rate (W_c) per tower	5,500 gal/min
Drift loss	0.020%
Blowdown/drift TDS	350 mg/l
PM10 Mass Fraction	55.840%
PM2.5 Mass Fraction	0.21%

	Total Liquid Drift	PM		PM10		PM2.5	
	(lb/10^3 gal)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Cooling Tower 1	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 2	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 3	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 4	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 5	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 6	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 7	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 8	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 9	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 10	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 11	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 12	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 13	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 14	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 15	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 16	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 17	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 18	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 19	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 20	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 21	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 22	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 23	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 24	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 25	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 26	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 27	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 28	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 29	1.67	0.19	0.84	0.11	0.47	0.00	0.00
Cooling Tower 30	1.67	0.19	0.84	0.11	0.47	0.00	0.00
	Total	**5.78**	**25.31**	**3.23**	**14.14**	**0.01**	**0.05**

	PM		PM10		PM2.5	
	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Plant 1	4.20	18.41	2.35	10.28	0.01	0.04
Plant 1 + Plant 2	5.78	25.31	3.23	14.14	0.01	0.05
Increase in PTE due to Plant 2	**1.58**	**6.90**	**0.88**	**3.86**	**0.00**	**0.01**

Methodology

Methodology ref: par. 2, page 13.4-3, AP-42 (1/95)

Total Liquid Drift (lb/10^3 gal) = Drift loss (%) / 100 x 8.34 (lb/gal) x 1,000 (gal/10^3 gal)

Emissions (lb/hr) = Total Liquid Drift (lb/10^3 gal) x Circulating water flow rate (gal/min) / 1,000 (gal/ gal 10^3) x 60 (min/hr) x Blowdown/drift TDS (mg/l) / 1,000,000 (mg/l / weight fraction)

Emissions (tons/yr) = Emissions (lb/hr) x 8,760 (hr/yr) / 2,000 (lb/ton)

PM10 and PM2.5 mass fractions were estimated using, "Calculating Realistic PM10 Emissions from Cooling Towers," by Reisman, J. and Frisbie, G.

Appendix A: Emission Calculations
FIREPUMP

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

PLANT 2 Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity (MMBtu/hr)	8.7
Maximum Hours Operated per Year	500
Potential Throughput (MMBtu/yr)	4,330
Sulfur Content (S) of Fuel (% by weight)	0.500

1237 BHP
8659000 btu/hr
8.659 mmbtu/hr

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.10	0.0573	0.0556	0.505 *(1.01S)*	3.2 **see below	0.09	0.85
Potential Emission in tons/yr	0.22	0.12	0.12	1.09	6.93	0.19	1.84
Potential Emission in lb/hr	0.87	0.50	0.48	4.37	27.71	0.78	7.36

*PM emission factor is from AP-42 Table 3.4-1. The PM10 and PM2.5 emission factors for are from AP-42 Table 3.4-2. The PM10 emission factor is the sum of filterable PM10 and condensable particulate. The PM2.5 emission factor is the sum of filterable particulate less than 3 um and condensable particulate.

**NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBtu

Hazardous Air Pollutants (HAPs)	Pollutant						Total PAH
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	HAPs***
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04	7.89E-05	2.52E-05	7.88E-06	2.12E-04
Potential Emission in tons/yr	1.68E-03	6.08E-04	4.18E-04	1.71E-04	5.46E-05	1.71E-05	4.59E-04
Potential Emission in lb/hr	3.84E-04	1.39E-04	9.54E-05	3.90E-05	1.25E-05	3.89E-06	1.05E-04

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Potential Emission of Total HAPs (tons/yr)	**3.41E-03**

Methodology
Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4.
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

Appendix A: Emission Calculations
PLANT 2 MAINT - WELDING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID MAINTENANCE
Criteria Pollutant Emission Rates

Welding Emissions: Emission factors vary by process used and electrode type.

Emission Factor: Table 12.19-1, AP-42
Maximum amount of electrode used (conservative assumption for typical maint dept): 5,000 *pounds carbon steel electrode*
Gas Metal Arc Welding (GMAW) used - E70S-#.

PM10 Emission Factor:	5.2	lb PM10/1000 lb electrode			
PM10 = (5.2 lb PM10 / 1000 lb electrode) * 33 lb electrode /yr					
Manganese = HAP Content % * PM10 lb/yr					
Typical Manganese HAP Content (%) =	5%				
Total PM10 Emission Rate (lb/yr) =	26.0	lb PM10/yr	divided by	8760	hours/yr
Manganese Emission Rate (lb/yr) =	1.30	pounds Manganese/yr		8760	hours/yr
Total PM10 Emission Rate (lb/hr) =	**2.97E-03**	lb PM10/hr			
Manganese Emission Rate (lb/hr) =	**1.48E-04**	lb Manganese/hr			
Total PM10 Emission Rate (tons/yr) =	**1.30E-02**	tons PM10/yr			
Manganese Emission Rate (tons/yr) =	**6.50E-04**	tons Manganese/yr			

Appendix A: Emission Calculations
PLANT 2 MAINT - Paint Booth

Company Name: ıs Energy LLC
Source Address: komo, Indiana
Permit Number: ᵀ-45648-00093
SSM No. ᵀ-47602-00094
SPM No. ᵀ-47628-00095
Reviewer: Sidhant Paul

TOUCH UP PAINT EMISSIONS SUMMARY

Pollutant	HAP?	Cans per Week	oz/week	Gal/week	Gal/yr	lb Pollutant / gal	PM CE	Uncontrolled (lb/hr)	Uncontrolled (lb/yr)	Uncontrolled (tons/yr)	Controlled (lb/hr)	Controlled (lb/yr)	Controlled (tons/yr)
VOC Emissions	Not Applicable	5	60	0.47	24.4	3.45		0.010	84.1	4.20E-02	0.010	84.1	4.20E-02
PM Emissions	Not Applicable	5	60	0.47	24.4	3.00	99%	0.008	73.1	3.66E-02	0.0001	0.0005	2.38E-07
Isobutyl Acetate	No	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03
Methyl Acetate	No	5	60	0.47	24.4	3.23		0.009	78.6	3.93E-02	0.009	78.6	3.93E-02
Talc	No	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03
Toluene	Yes	5	60	0.47	24.4	0.65		0.002	15.7	7.86E-03	0.002	15.7	7.86E-03

From the Krylon Touch up paint SDS [1]Control Efficiency obtained from the manufacturer's specification below.

Key Assumptions

12	oz per aerosol can
128	oz/gal
99%	paint booth filter control efficiency for PM emissions
100%	transfer efficiency (conservative assumption)
5	cans used per week every week of the year (conservative assumption)
100%	All the contents of the can are used for each part or tool painted (conservative assumption)

Appendix A: Emission Calculations
ELECTROLYTE STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

VOC Emissions

Process ID ELECTROLYTE STORAGE
Criteria Pollutant Emission Rates
The Electrolyte is stored in a bulk storage tank and is sent via pipe using nitrogen gas. There are tank breathing and working emissions and fugitive emissions from coupler and safety valves.

Material Name[1]	Process Information						Connectors			Valves			VOC Emissions[4]		
	Density	Vapor Press.	VOC As Used / As Applied		Maximum Annual Throughput		Count	Emission Factor[4]	VOC Emissions	Count	Emission Factor[4]	VOC Emissions	Uncontrolled Emissions	Control Efficiency[2]	Controlled Emissions
	lbs/gal	psia	lbs/gal	%	Gal/year	Tons/year		lb/hr/ea	lb/hr		lb/hr/ea	lb/hr	lb/year	%	lb/year
SoulBrain Electrolyte	10.20	Not Avail	8.16	80.00%	3,237,312	16,510	15	0.0005	0.0075	15	0.0035	0.0525	525.60	70%	157.68
												Total for All Products (lb/year):	525.60		157.68
												Total for All Products (lb/hour):	0.06		0.02
												Total for All Products (ton/year):	0.26		0.08

[1] *This is the list of utilized materials is based on comparable facilities (Samsung-SDI Korea Plant).*

Electrolyte Storage Tank							VOC Emissions[3], Uncontrolled				Control Efficiency[2]	VOC Emissions[3], Controlled			
Tank Types	Contents	Capacity (gal)	Total Throughput (gal)	Quantity	Throughput per Tank (gal)	Emission Calculation Basis	lb/yr/tank	lb/hr	lb/yr	ton/yr	%	lb/yr/tank	lb/hr	lb/yr	ton/yr
Electrolyte Storage Tank	Virgin Electrolyte	528	3,237,312	1	3,237,312	TankESP	0.29	3.33 E-05	0.29	1.46 E-04	70%	0.20	2.33 E-05	0.20	1.02 E-04
Total for all Units								**3.33 E-05**	**0.29**	**1.46 E-04**			**2.33 E-05**	**0.20**	**1.02 E-04**

Control Device	Process	Quantity (Sets)	Capture Efficiency	Control Efficiency[2]	Total Control	Internal Diameter	Height	Temperature	Operational Flow Rate per Unit	
			%	%	%	ft	ft	F	ACFM	SCFM
CAT-06	Electrolyte Storage	1	100%	70%	70%	3.25	27.48	86	24,720	22,945
Total for all Units									**24,720**	**22,945**

[2] *Electrolyte storage will be in a building with CAT Tower Controls (APC ID: CAT-06), providing the listed control efficiency (provided by Samsung-SDI Samoo Activated Carbon Tower Data (Specification) Sheet - June 10, 2022 - remark No. 11).*
[3] *Tank VOC emissions calculated using BREEZE TanksESP*
[4] *Fugitive VOC emissions will occur from valves and connectors inside the storage room (but will be controlled by the CAT Tower) which have been estimated as follows:*
Emission factors are based on TCEQ Fugitive Guidance document APDG 6422, dated June 2018, Table 1 (https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/fugitive-guidance.pdf)
Emission factors for Light Liquid are used because of the vapor pressure of the electrolyte.
Emission factors for SOCMI Without Ethylene are used due to product components listed on SDS.
Emissions [lb/hr] = Fugitive Emission Factor [lb/hr/component] x Count of Components [#]

Appendix A: Emission Calculations
PLANT 2 INNOVATION

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

VOC Emissions

Process ID INNOVATION
Criteria Pollutant Emission Rates

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year
DMC (Di Methyl Carbonate)	Assembly, Innovation	8.81	90.08	1.10	0.00	0.00%	0.00%	14	0.06	86	0.00	0%	0.00
										Total for All Products (lb/year):	**0.00**		**0.00**
										Total for All Products (lb/hour):	**0.00**		**0.00**
										Total for All Products (lb/day):	**0.00**		**0.00**
										Total for All Products (ton/year):	**0.00**		**0.00**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will be R&D for LIB production
[3]VOC Emissions are not controlled.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations
PLANT 2 PACKING

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID PACKING
Criteria Pollutant Emission Rates

VOC/HAP Emissions

Material Name[1]	Process[2]	Physical Characteristics						Process Information			VOC Emissions[4]			Methylene Diphenyl Diisocyante[5]		
		Density	Molecular Weight	Vapor Press.	VOC As Used / As Applied		Solids	Maximum Annual Throughput		Process Temp.	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions	Uncontrolled Emissions	Control Efficiency[3]	Controlled Emissions
		lbs/gal	lb/mol	psia	lbs/gal	%	%	Gal/year	Tons/year	F	lb/year	%	lb/year	lb/year	%	lb/year
Acetone (Clean)	Pack	0.00	0.00	0.00	0.00	0.00%	0.00%	0	0.00	0	0.00	0%	0.00	0.00	0%	0.00
Sonderhoff Fermapor K31-B-4	Module, Pack	9.91	250.25	0.04	0.26	2.61%	0.00%	101	0.50	86	26.10		26.10	6.53		6.53
Isopropyl Alchohol (Clean)	Pack, Module, Assembly, Electrode	6.52	60.10	0.62	6.52	100.00%	0.00%	382	1.25	86	2,493.33		2,493.33	0.00		0.00
P-80 Grip-It	Pack/Assembly	8.30	18.00	0.46	0.01	0.10%	3.00%	120	0.50	86	1.00		1.00	0.00		0.00
Dr Schultz PU- Hot Cleaner	HVS pack	9.17	0.00	0.00	0.00	0.00%	0.00%	47,527	218.01	86	0.00		0.00	0.00		0.00
Kluber Syntheso Glep 1	HVS Pack	8.06	--	0.00	0.00	0.00%	100.00%	248	1.00	86	0.00		0.00	0.00		0.00
										Total for All Products (lb/year):	**2,520.43**		**2,520.43**	**6.53**		**6.53**
										Total for All Products (lb/hour):	**0.29**		**0.29**	**0.0007**		**0.00074**
										Total for All Products (ton/year):	**1.26**		**1.26**	**0.0033**		**0.00326**

[1]This is the list of utilized materials is based on comparable facilities (based on the Samsung-SDI Hungary Plant).
[2]This process will form the cells into a module (8-12 cells) and initial testing will be conducted.
[3]VOC Emissions are not controlled.
[4]VOC Emissions [lbs/yr] = Product Usage [gal/yr] x VOC Content [lb/gal]
[5]HAP emissions [lb/yr] = VOC emissions [lb/yr] x HAP content in material [%]

Appendix A: Emission Calculations

PLANT 2 USEDNMP STORE

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Process ID USEDBATT STORE
Criteria Pollutant Emission Rates
The Used Battery Storage will have similar emissions to the Formation process. Used Batteries will be sent to the storage room for discharging which will create the gas emissions similar to the discharging during Formation.

VOC/CO2/H2 Emissions

Calculate vent-gas released during formation
From research conducted by others, calculate the total gas amount (by weight) emitted per cell
Possible Amount of Gas Emitted during Formation from 1 Cell (used Worst Case Value)

Device (LIB Cells)	Total Gas Emission Amount/mmol/cell[1]
ICR18650-32A (NCA[2])	6.2
INR18650-35E (NCA[2])	3.69
INR18650-MJ1 (NCA[2])	1.64

[1] *1st Venting Condition of a damaged cell conservatively represents LIB Formation initial charging/discharging*
[2] *Table 1 "Holistic methodology for characterisation of thermally induced…....RSC Advances, 2017"*

Formation Pollutants	Molecular Weight		
	g/mol	g/mmol	lb/mmol
H2	2.016	0.002016	4.44053E-06
CO2	44.01	0.04401	9.69383E-05
CO	28.01	0.02801	6.1696E-05
CH4	16.04	0.01604	3.53304E-05
VOCs	78.95	0.07895	0.000173899

Formation Gas Composition	Percent by Weight[3]	Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Uncontrolled Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate	Controlled[5,6] Mass Emission Rate
	(%)	(lb/cell[4])	(lb/hr)	(lb/yr)	(tons/yr)	(lb/hr)	(lb/yr)	(tons/yr)
H2	2.4%	6.69E-07	2.79E-06	0.02	0.00	2.79E-06	0.02	0.00001
CO2	82.2%	4.94E-04	2.06E-03	18.03	0.01	2.06E-03	18.03	0.00902
CO	0.0%	0.00E+00	-	-	-	-	-	-
CH4	0.0%	0.00E+00	-	-	-	-	-	-
VOCs	15.4%	1.66E-04	6.91E-04	6.05	0.00303	2.07E-04	1.82	0.00091
Total	100.0%							

[3] *Formation Gas Composition emission percent by weight from "Table 1, "Detection of Li-ion battery failure…..etransportion 7 (2021) 100100"*
[4] *Annual # of LIB Cells Sent to Used Battery St 36,500 cells / yr*
[5] *Control Efficiency of the CAT Towers= 70%*
[6] Assumed that CAT Towers will not destroy CO2 or H2 - 0% control efficiency (conservative assumption)

Table 1 , " Detection of Li-ion battery failure and venting with Carbon Dioxide Sensors, Ting Cai, Puneet Valecha, Vivian Tran, Brian Engle, Anna Stefanopoulou, Jason Siegel, eTransportation 7 (2021) 100100"
Table 1, "Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017"
"Holistic methodology for characterisation of the thermally induced failure of commercially available 18650 lithium ion cells, Michael Lammer, Alexander K¨onigseder and Viktor Hacker, RSC Advances, 2017"

Appendix A: Emission Calculations
Material Specs

Company Name: StarPlus Energy LLC
Source Address: 2724 N 00 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47682-00004
SPM No. 067-47638-00095
Reviewer: Sidhant Paul

List of All Materials
Material Specifications Index

| Material Name[1] | MSDS Composion Analysis RPF +/- | Input Material No. from Jeon 3-16-23 email | Raw Material Category | Process | Information Source[1] | Contains Federal HAP? | Physical Characteristics | | | | | | Process Information | | | | Maximum (Capacity) Process Material Throughput[2] | | | | | |

Appendix A: Emission Calculations
Throughput basis
Company Name: **StarPlus Energy LLC**
Source Address: **2724 N 50 E, Kokomo, Indiana**
Permit Number: **067-45648-00093**
SSM No. **067-47602-00094**
SPM No. **067-47628-00095**
Reviewer: **Sidhant Paul**

Input materials for Kokomo based on Hungary factory #2

Summary
Battery materials consist of Nickel, Cobalt, Aluminum, Copper Lithium, NMP Solvent, electrolyte and other items below.
There are some mechanical parts for the battery modules as well. For specifics please refer to below.

	Input Material	CAS Number	Unit	Hungary Quantity	Potential Throughput (tons/yr)
1	GRAPHITE	7782-42-5	t/year	60,000	30,386
2	Hotmelt RESIN	8042-47-5	t/year	40	20
3	NICKEL COBALT ALUMINIUM OXIDE	1344-28-11303-86-21308-04-912057-24-81314-06-3	t/year	90,000	45,000
4	PVDF (Poly vinylene fluoride)	24937-79-9	t/year	900	500
5	Styrene Butadiene Rubber	25155-30-0100-42-5106-99-07732-18-5	t/year	2,300	1,335
6	CMC(Sodium carboxymethy cellulose)	9004-32-4	t/year	500	275
7	Isopropyl Alchohol(clean)	67-63-0	t/year	10	5
8	Module:Gap filler(resin)	1241-94-7 (5%=<X<7%)	t/year	200	100
9	Module: Gap filler(hardner)	9016-87-9 (60%=<X<70%) 101-68-8 (15%=<X<20%) 6828-35-9 (3%=<X<10%)	t/year	30	15
10	FERMAPOR K31-B-4	9016-87-9	t/year	1	1
11	Aceton(clean)	67-64-1	t/year	1	1
12	NMP (N-METHYL-2-PYRROLIDONE)	872-50-4	t/year	31,000	15,500
13	ELECTROLYTE	21324-40-396-49-1616-38-6623-53-0872-36-6	t/year	30,000	16,510
14	DMC (Di Methyl Carbonate)	616-38-6	t/year	60	30
15	P-80 Grip-it	N/A	t/year	1	1
16	PU- hot cleaner	N/A	t/year	1	1
17	Syntheso Glep 1	N/A	t/year	1	1
18	NaOH(Caustic soda)	1310-73-2	t/year	121	60
19	Ca(OH)2 (calcium-hydroxide)	1305-62-0	t/year	8	4
20	PAC (polialuminium kloride)	12042-91-01327-41-9	t/year	322	161
21	Anionic polymer	- (keverék/mix)	t/year	2,010	1,005
22	Oxalic Acid		t/year	100	50
23	TDS-50HL		t/year	6,000	5,450
24	Copper Foil		t/year		
25	Arctic 1 Diesel		t/year		

Appendix A: Emission Calculations

TankESP Annual Emissions Report

Company Name: StarPlus Energy LLC
Source Address: 2724 N 50 E, Kokomo, Indiana
Permit Number: 067-45648-00093
SSM No. 067-47602-00094
SPM No. 067-47628-00095
Reviewer: Sidhant Paul

Equations for this site: After 2019 AP-42 revisions H/D ratio: Default 0.5

Tank ID	Tank Diameter (ft)	Tank Type	Product	Throughput (gal)	Bulk Liquid Temperature (degF)	Avg. Liquid Surface Temp. (degF)	Avg. TVP (psia	Includes a landing loss?	Initial fill?	Includes a tank cleaning?	Number of Days	Estimated standing losses (lbs)	Estimated working losses (lbs)	Routine Emissions (lbs)	Non Routine Emissions (lbs)	Total Uncontrolled VOC emissions (lbs)	Total Controlled VOC emissions (lbs)
Binder Mixer Tanks	4.4291339	FRT (no floating roof)	Binder	15,009,514.80	52.880361	53.33583	0.95496139	N	N	N	365	22.191065	6,771.17	6,793.36	0	6,793.36	2,038.01
Binder Storage Tanks	4.4291339	FRT (no floating roof)	Binder	15,009,514.80	52.880361	53.33583	0.95496139	N	N	N	365	15.997638	6,732.27	6,748.27	0	6,748.27	2,024.48
Coater Buffer Tanks	4.4291339	FRT (no floating roof)	Virgin NMP	22,014,620.88	52.880361	53.33583	0.002379151	N	N	N	365	0.04287881	21.23	21.27	0	21.27	6.38
Diesel Tanks	13.54055	Horizontal Tank	Diesel	372,000.00	52.880361	53.33583	0.005188162	N	N	N	365	0.54971493	4.19	4.74	0	4.74	1.42
EMF Tanks	4.4291339	FRT (no floating roof)	Virgin NMP	22,014,620.88	52.880361	53.33583	0.002379151	N	N	N	365	0.03934088	21.21	21.24	0	21.24	6.37
EMF Buffer Tanks	4.4291339	FRT (no floating roof)	Virgin NMP	22,014,620.88	52.880361	53.33583	0.002379151	N	N	N	365	0.03934088	21.21	21.24	0	21.24	6.37
HD Mixer Tanks	5.7086614	FRT (no floating roof)	NMP & Binder	22,014,620.88	52.880361	53.33583	0.035017346	N	N	N	365	1.9388174	345.15	347.09	0	347.09	104.13
NMP Recovery Tanks	10.498688	FRT (no floating roof)	Recovered NMP	14,361,805.08	52.880361	53.33583	0.002379151	N	N	N	365	0.23066553	14.93	15.16	0	15.16	4.55
NMP Storage Tanks	4.4291339	FRT (no floating roof)	Virgin NMP	14,361,805.08	52.880361	53.33583	0.002379151	N	N	N	365	0.03934088	13.91	13.95	0	13.95	4.18
NMP Supply Tanks	8.8582677	FRT (no floating roof)	Virgin NMP	143,905,587.00	52.880361	53.33583	0.002379151	N	N	N	365	0.23998926	138.61	138.85	0	138.85	41.65
LCNT Tanks	4.4291339	FRT (no floating roof)	Virgin NMP	10,113,158.30	52.880361	53.33583	0.002379151	N	N	N	365	0.03934088	6.95	6.97	0	6.97	2.09
Slurry Storage Tank	4.4291339	FRT (no floating roof)	Virgin NMP	22,014,620.88	52.880361	53.33583	0.002379151	N	N	N	365	0.03934088	21.21	21.24	0	21.24	6.37

Indiana Department of Environmental Management
Office of Air Quality

Appendix A - Proposed Changes to Permit

Technical Support Document (TSD) for a Part 70 Significant Source Modification and Significant Permit Modification

Source Description and Location

Source Name:	**StarPlus Energy LLC**
Source Location:	**2724 N. 50 E., Kokomo, Indiana 46901**
County:	**Howard**
SIC Code:	**3691 (Storage Batteries), 2869 (Industrial Organic Chemicals, Not Elsewhere Classified)**
Operation Permit No.:	**T 067-45648-00093**
Operation Permit Issuance Date:	**September 12, 2023**
Significant Source Modification No.:	**067-47602-00093**
Significant Permit Modification No.:	**067-47628-00093**
Permit Reviewer:	**Sidhant Paul**

Proposed Changes to Permit

As part of this permit approval, the permit may contain new or different permit conditions and some conditions from previously issued permits/approvals may have been corrected, changed, or removed. These corrections, changes, and removals may include Title I changes.

The following changes listed below are due to the proposed modification. Deleted language appears as ~~strikethrough~~ text and new language appears as **bold** text (these changes may include Title I changes):

(1) Since the issuance of the initial New Source Construction and Part 70 Operating Permit, an updated source determination was done to include the support facility JWA CO., LTD. This determination was made as part of Part 70 Administrative Permit (067-47041-00096) issued on February 20, 2024. Section A has been revised to reflect this change.

(2) As part of this significant source and permit modification the emission unit descriptions for all the initially permitted units in the A.2 section were revised to include updated throughputs, Control IDs and stack IDs.

(3) As part of this significant source and permit modification the source updated the integral process equipment for the cathode coating line. The update to integral process equipment resulted in updates to the testing language and parametric monitoring requirements.

(4) As part of this significant source and permit modification the source updated the stack ID's for the anode and cathode coating line. The initial permit had each control devices associated with the processes going to an individual stack, based on updated construction plans the source opted to manifold many of the stacks into one. As such previous PSD minor source limits were revised to incorporate the stack manifolding.

(5) As part of this significant source and permit modification the source seeks approval for the construction and operation of a second identical plant as part of this source. As such new emission units were added to the permit. These units resulted in the inclusion of new D sections (D.7 to D.12). These units were given emission limits to render the source minor under PSD and an area source of HAP emissions under Section 112 of the Clean Air Act.

(6) As part of this significant source and permit modification IDEM was made aware that the Boiler capacities have changed as such that NSPS evaluation for 40 CFR Subpart Dc are included.

(7) In order to ensure permit timeliness and to accurately encapsulate the permit changes IDEM has opted to strike out the A.2 to A.4 sections, along with the existing D and E sections of the permit and place updated sections in its place.

….

~~A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(14)][326 IAC 2-7-1(22)]~~

~~The Permittee owns and operates a stationary Lithium Ion battery manufacturing operation.~~

~~Source Address:~~	~~2724 N. 50 E., Kokomo, Indiana 46901~~
~~General Source Phone Number:~~	~~(248) 978 4225~~
~~SIC Code:~~	~~3691 (Storage Batteries)~~
~~County Location:~~	~~Howard~~
~~Source Location Status:~~	~~Attainment for all criteria pollutants~~
~~Source Status:~~	~~Part 70 Operating Permit Program~~
	~~Minor Source, under PSD and Emission Offset Rules~~
	~~Minor Source, Section 112 of the Clean Air Act~~
	~~Not 1 of 28 Source Categories~~

~~A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]~~

~~This stationary source consists of the following emission units and pollution control devices:~~

~~(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction, and consisting of the following:~~

~~Unit Name~~	~~Unit ID~~	~~Capacity (gal)**~~	~~Nominal Throughput (gal/hr)~~	~~Nominal Throughput (gal/yr)~~	~~Year~~	~~Control~~	~~Stack~~
~~Four (4) Cathode Inlet Tanks~~	~~Cathode Inlet 1-4~~	~~1,057~~	~~570~~	~~4,272,318~~	~~2023*~~	~~Bag filter CBF15~~	~~CS-15~~
~~Four (4) HD Mixer Tanks~~	~~HD 1-4~~	~~634~~			~~2023*~~	~~Bag filter CBF2~~	~~CS-2~~
						~~CAT-01a, CAT-01b and CAT-01c Standby~~	~~S-1a, S-1b, and S-1c Standby~~
~~Two (2) Binder Silos~~	~~Binder Silo 1-2~~	~~792~~			~~2023*~~	~~Bag filter CBF8~~	~~CS-8~~
~~One (1) Binder Booth~~	~~Binder booth 1~~	~~528~~			~~2023*~~	~~Bag filter CBF16~~	~~CS-16~~
~~Four (4) Cathode Silos~~	~~Cathode silo 1-4~~	~~1,057~~			~~2023*~~	~~Bag filter CBF7~~	~~CS-7~~
~~Four (4) Cathode Mixer Hoppers~~	~~CMH 1-4~~	~~528~~			~~2023*~~	~~Bag filter CBF7~~	~~CS-7~~
~~Two (2) Binder Mixers tanks~~	~~Binder Mixer 1-2~~	~~528~~			~~2023*~~	~~Bag filter CBF1~~	~~CS-1~~
						~~CAT-01a, CAT-01b and CAT-~~	~~S-1a, S-1b, and S-1c Standby~~
~~Four (4) Binder Storage Tanks~~	~~BST 1-4~~	~~528~~			~~2023*~~		

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Seven (7) LCNT Tanks	LCNT1-7	634			2023*	01c Standby	
One (1) NMP Supply Tank	NMPST1	5,283			2023*		
Four (4) Emf Buffer Tank	EMFBT 1-4	528			2023*		
Four (4) Emf Tanks	EMFT 1-4	528			2023*		
Seven (7) (HD Slurry) Storage Tanks	HDSST 1-7	528			2023*		
One (1) Coater Buffer Tank	CBT 1	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction, and consisting of the following

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Three (3) Cathode Inlet Tanks	Cathode Inlet 5-7	1057	570	4,272,318	2023*	Bag filter CBF17	CS-17
Three (3) HD Mixer Tanks	HD 5-7	634			2023*	Bag filter CBF3	CS-3
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 3-4	792			2023*	Bag filter CBF10	CS-10
One (1) Binder Booth	Binder Booth 2	528			2023*	Bag filter CBF18	CS-18
Three (3) Cathode Silos	Cathode Silo 5-7	1057			2023*	Bag filter CBF9	CS-9
Three (3) Cathode Mixer Hoppers	CMH 5-7	528			2023*	Bag filter CBF9	CS-9
Two (2) Binder Mixers	Binder Mixer 3-4	528			2023*	Bag filter CBF1	CS-1
						CAT-01a, CAT-01b	S-1a, S-1b, and
Four (4) Binder Storage Tanks	BST 5-8	528			2023*		

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Seven (7) LCNT Tanks	LCNT 8-14	634			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1c Standby
One (1) NMP Supply Tank	NMPST 2	5283			2023*		
Four (4) Emf Buffer Tank	EMFBT 5-7	528			2023*		
Four (4) Emf Tanks	EMFT 5-7	528			2023*		
Seven (7) (HD Slurry) Storage Tanks	HDSST 8-14	528			2023*		
One (1) Coater Buffer Tank	CBT 2	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Four (4) Cathode Inlet Tanks	Cathode Inlet 8-11	1057	**570**	**4,272,318**	2023*	Bag filter CBF19	CS-19
Four (4) HD Mixer Tanks	HD 8-11	634			2023*	Bag filter CBF5	CS-5
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 5-6	792			2023*	Bag filter CBF8	CS-8
One (1) Binder Booth	Binder booth 3	528			2023*	Bag filter CBF20	CS-20
Four (4) Cathode Silos	Cathode silo 8-11	1057			2023*	Bag filter CBF11	CS-11
Four (4) Cathode Mixer Hoppers	CMH 8-11	528			2023*	Bag filter CBF11	CS-11
Two (2) Binder Mixes	Binder Mixer 5-6	528			2023*	Bag filter CBF4	CS-4
Four (4) Binder Storage Tanks	BST 9-12	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Seven (7) LCNT Tanks	LCNT 15-21	634			2023*		

~~Unit Name~~	~~Unit ID~~	~~Capacity (gal)**~~	~~Nominal Throughput (gal/hr)~~	~~Nominal Throughput (gal/yr)~~	~~Year~~	~~Control~~	~~Stack~~
~~One (1) NMP Supply Tank~~	~~NMPST 3~~	~~5283~~			~~2023*~~		
~~Four (4) Emf Buffer Tank~~	~~EMFBT 8-11~~	~~528~~			~~2023*~~		
~~Four (4) Emf Tanks~~	~~EMFT 8-11~~	~~528~~			~~2023*~~		
~~Seven (7) (HD Slurry) Storage Tanks~~	~~HDSST 15-21~~	~~528~~			~~2023*~~		
~~One (1) Coater Buffer Tank~~	~~CBT 3~~	~~528~~			~~2023*~~		

~~* Year approved for construction~~
~~** Each individual tank/booth/silo/hopper has the listed capacity~~

~~Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.~~

~~(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction, and consisting of the following:~~

~~Unit Name~~	~~Unit ID~~	~~Capacity (gal)**~~	~~Nominal Throughput (gal/hr)~~	~~Nominal Throughput (gal/yr)~~	~~Year~~	~~Control~~	~~Stack~~
~~Three (3) Cathode Inlet Tanks~~	~~Cathode Inlet 12-14~~	~~1057~~	~~570~~	~~4,272,318~~	~~2023*~~	~~Bag filter CBF21~~	~~CS-21~~
~~Three (3) HD Mixer Tanks~~	~~HD 12-14~~	~~634~~			~~2023*~~	~~Bag filter CBF6~~	~~CS-6~~
						~~CAT-01a, CAT-01b and CAT-01c Standby~~	~~S-1a, S-1b, and S-1c Standby~~
~~Two (2) Binder Silos~~	~~Binder Silo 7-8~~	~~792~~			~~2023*~~	~~Bag filter CBF14~~	~~CS-14~~
~~One (1) Binder Booth~~	~~Binder Booth 4~~	~~528~~			~~2023*~~	~~Bag filter CBF22~~	~~CS-22~~
~~Three (3) Cathode Silos~~	~~Cathode Silo 12-14~~	~~1057~~			~~2023*~~	~~Bag filter CBF13~~	~~CS-13~~
~~Three (3) Cathode Mixer Hoppers~~	~~CMH 12-14~~	~~528~~			~~2023*~~	~~Bag filter CBF13~~	~~CS-13~~
~~Two (2) Binder Mixes~~	~~Binder Mixer 7-8~~	~~528~~			~~2023*~~	~~Bag filter CBF4~~	~~CS-4~~
~~Four (4) Binder Storage Tanks~~	~~BST 13-16~~	~~528~~			~~2023*~~	~~CAT-01a, CAT-01b and CAT-01c Standby~~	~~S-1a, S-1b, and S-1c Standby~~
~~Seven (7) LCNT Tanks~~	~~LCNT 22-28~~	~~634~~			~~2023*~~		
~~One (1) NMP Supply Tank~~	~~NMPST 4~~	~~5283~~			~~2023*~~		
~~Four (4) Emf Buffer Tank~~	~~EMFBT 12-14~~	~~528~~			~~2023*~~		

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Four (4) Emf Tanks	EMFT 12-14	528			2023*		
Seven (7) (HD Slurry) Storage Tanks	HDSST 22-28	528			2023*		
One (1) Coater Buffer Tank	CBT 4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) One (1) Anode raw material handling and mixing line, identified as ALine1, approved in 2023 for construction, and consisting of the following

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	PM Control	Stack
Three (3) PD Mixers	PDM 1-3	608	1,350	10,113,158	2023*	Bag filter ABF2	AS-2
Three (3) PD Mixers	PDM 4-6	608			2023*	Bag filter ABF3	AS-3
Three (3) CMC Mixers	CMC Mixer 1-3	528			2023*	Bag filter ABF1	AS-1
One (1) Anode Conductive Powder Booth	ACPB 1	792			2023*	Bag filter ABF20	AS-20
One (1) CMC Booth	CMC Booth 1	792			2023*	Bag filter ABF20	AS-20
Two (2) Anode Conductive Powder Silos	ACPS 1-2	792			2023*	Bag filter ABF12	AS-12
One (1) CMC Silo	CMC Silo 1	792			2023*	Bag filter ABF 12	AS-12
Four (4) Anode Inlets	Anode Inlet 1-4	1057			2023*	Bag filter ABF19	AS-19
Four (4) Anode Silos	Anode Silo 1-4	1057			2023*	Bag filter ABF11	AS-11
Six (6) Anode Mixer Hoppers	AMH 1-6	528			2023*	Bag filter ABF11	AS-11
Six (6) CMC Storage Tanks	CMCST 1-6	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 1	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 1-12	528			2023*		
Two (2) Coater Buffer Tanks	CBT 1-2	528			2023*		

* Year approved for construction

** Each individual tank/booth/silo/hopper has the listed capacity

(f) One (1) Anode raw material handling and mixing line, identified as ALine2, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	PM Control	Stack
Three (3) PD Mixers	PDM 7-9	608	1,350	10,113,158	2023*	Bag filter ABF4	AS-4
Three (3) PD Mixers	PDM 10-12	608			2023*	Bag filter ABF5	AS-5
Three (3) CMC Mixers	CMC Mixer 4-6	528			2023*	Bag filter ABF1	AS-1
One (1) Anode Conductive Powder Booth	ACPB 2	792			2023*	Bag filter ABF22	AS-22
One (1) CMC Booth	CMC Booth 2	792			2023*	Bag filter ABF22	AS-22
Two (2) Anode Conductive Powder Silos	ACPS 3-4	792			2023*	Bag filter ABF14	AS-14
One (1) CMC Silo	CMC Silo 2	792			2023*	Bag filter ABF 14	AS-14
Four (4) Anode Inlets	Anode Inlet 5-8	1057			2023*	Bag filter ABF21	AS-21
Four (4) Anode Silos	Anode Silo 5-8	1057			2023*	Bag filter ABF13	AS-13
Six (6) Anode Mixer Hoppers	AMH 7-12	528			2023*	Bag filter ABF13	AS-13
Six (6) CMC Storage Tanks	CMCST 7-12	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 2	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 13-24	528			2023*		
Two (2) Coater Buffer Tanks	CBT 3-4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

(g) One (1) Anode raw material handling and mixing line, identified as ALine 3, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	PM Control	Stack
Three (3) PD Mixers	PDM 13-15	608	1,350	10,113,158	2023*	Bag filter ABF7	AS-7
Three (3) PD Mixers	PDM 16-18	608			2023*	Bag filter ABF8	AS-8
Three (3) CMC Mixers	CMC Mixer 7-9	528			2023*	Bag filter ABF6	AS-6

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	PM Control	Stack
One (1) Anode Conductive Powder Booth	ACPB 3	792			2023*	Bag filter ABF24	AS-24
One (1) CMC Booth	CMC Booth 3	792			2023*	Bag filter ABF24	AS-24
Two (2) Anode Conductive Powder Silos	ACPS 5-6	792			2023*	Bag filter ABF16	AS-16
One (1) CMC Silo	CMC Silo 3	792			2023*	Bag filter ABF16	AS-16
Four (4) Anode Inlets	Anode Inlet 9-12	1057			2023*	Bag filter ABF23	AS-23
Four (4) Anode Silos	Anode Silo 9-12	1057			2023*	Bag filter ABF15	AS-15
Six (6) Anode Mixer Hoppers	AMH 13-18	528			2023*	Bag filter ABF15	AS-15
Six (6) CMC Storage Tanks	CMCST 13-18	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 3	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 25-36	528			2023*		
Two (2) Coater Buffer Tanks	CBT 5-6	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

(h) One (1) Anode raw material handling and mixing line, identified as ALine 4, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	PM Control	Stack
Three (3) PD Mixers	PDM 19-21	608	1,350	10,113,158	2023*	Bag filter ABF9	AS-9
Three (3) PD Mixers	PDM 22-24	608			2023*	Bag filter ABF10	AS-10
Three (3) CMC Mixers	CMC Mixer 10-12	528			2023*	Bag filter ABF6	AS-6
One (1) Anode Conductive Powder Booth	ACPB 4	608			2023*	Bag filter ABF26	AS-26
One (1) CMC Booth	CMC Booth 4	608			2023*	Bag filter ABF26	AS-26
Two (2) Anode Conductive Powder Silos	ACPS 7-8	528			2023*	Bag filter ABF18	AS-18
One (1) CMC Silo	CMC Silo 4	608			2023*	Bag filter ABF 18	AS-18

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	PM Control	Stack
Four (4) Anode Inlets	Anode Inlet 13-16	608			2023*	Bag filter ABF25	AS-25
Four (4) Anode Silos	Anode Silo 6-8	528			2023*	Bag filter ABF17	AS-17
Six (6) Anode Mixer Hoppers	AMH 19-24	608			2023*	Bag filter ABF17	AS-17
Six (6) CMC Storage Tanks	CMCST 19-24	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 4	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 37-48	528			2023*		
Two (2) Coater Buffer Tanks	CBT 7-8	528			2023*		

* Year approved for construction
** Per individual unit

(i) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat1, approved in 2023 for construction, with nominal capacity of 39,000 square inches per minute of coil, and emissions controlled by the solvent recovery system.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat2, approved in 2023 for construction, with nominal capacity of 39,000 square inches per minute of coil, and emissions controlled by the solvent recovery system.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat3, approved in 2023 for construction, with nominal capacity of 39,000 square inches per minute of coil, and emissions controlled by the solvent recovery system.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat4, approved in 2023 for construction, with nominal capacity of 39,000 square inches per minute of coil, and emissions controlled by the solvent recovery system.

(5) One (1) integral solvent recovery system, approved in 2023 for construction, consisting of the following:

(A) Five (5) integral condensers in parallel, identified as NMPCond01-NMPCond05, approved in 2023 for construction, exhausting to CAT-07.

(B) Five (5) NMP recovery tanks, identified as NMPRT01- NMPRT 05, approved in 2023 for construction, receiving NMP from the 5 NMP recovery condensers (NMPCond01-NMPCond05).

(C) One (1) Adsorber, identified as CAT-07, approved in 2023 for construction, collectively consisting of five (5) adsorbers (CAT-07a, CAT-07b, CAT-07c, CAT-07d, & CAT-07e standby), exhausting to stacks S-7a, S-7b, S-7c, S-7d, & S-7e, respectively, exhausting to atmosphere.

(j) Anode coating process, consisting of the following:

~~(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat1, approved in 2023 for construction, with nominal capacity of 9,842 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.~~

~~(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat2, approved in 2023 for construction, with nominal capacity of 9,842 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.~~

~~(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat3, approved in 2023 for construction, with nominal capacity of 9,842 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.~~

~~(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat4, approved in 2023 for construction, with nominal capacity of 9,842 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.~~

~~(k) Anode slitting process, consisting of the following:~~

~~(1) One (1) Anode slitter, identified as AS1, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (ASBF1- ASBF4), and exhausting to stack (ASP).~~

~~(2) One (1) Anode slitter, identified as AS2, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (ASBF5- ASBF8), and exhausting to stack (ASP).~~

~~(3) One (1) Anode slitter, identified as AS3, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (ASBF9-ASBF12), and exhausting to stack (ASP).~~

~~(4) One (1) Anode slitter, identified as AS4, approved for construction in 2023, with nominal capacity 3,937 inches per min, controlled by four bag filters (ASBF13- ASBF16), and exhausting to stack (ASP).~~

~~(l) Cathode slitting process, consisting of the following:~~

~~(1) One (1) Cathode slitter, identified as CS1, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (CSBF1- CSBF4), and exhausting to stack (CSP).~~

~~(2) One (1) Cathode slitter, identified as CS2, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (CSBF5- CSBF8), and exhausting to stack (CSP).~~

~~(3) One (1) Cathode slitter, identified as CS3, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (CSBF9-CSBF12), and exhausting to stack (CSP).~~

~~(4) One (1) Cathode slitter, identified as CS4, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (CSBF13-CSBF16), and exhausting to stack (CSP).~~

~~(m) One (1) Assembly process, consisting of the following:~~

~~(1) Four (4) Stacking Lines, consisting of the following:~~

~~Line 1~~
~~(A) Thirty-two (32) stackers, identified as S1_1 to S1_32, approved in 2023 for construction, with a nominal throughput of 2,096 cells/hr, total, and each controlled by a bag filter (S1_BF1 to S1_BF32) respectively, exhausting to stack (SL).~~

~~Line 2~~
~~(B) Thirty-two (32) stackers, identified as S2_1 to S2_32, approved in 2023 for construction, with a nominal throughput of 2,096 cells/hr, and each controlled by a bag filter (S2_BF1 to S2_BF32) respectively, exhausting to stack (SL).~~

~~Line 3~~
~~(C) Twenty-five (25) stackers, identified as S3_1 to S3_25, approved in 2023 for construction, with a nominal throughput of 2,096 cells/hr, and each controlled by a bag filter (S3_BF1 to S3_BF25) respectively, exhausting to stack (SL).~~

~~Line 4~~
~~(D) Twenty-five (25) stackers, identified as S4_1 to S4_25, approved in 2023 for construction, with a nominal throughput of 2,096 cells/hr, and each controlled by a bag filter (S4_BF1 to S4_BF25) respectively, exhausting to stack (SL).~~

~~(2) Four (4) LPW lines, consisting of the following:~~

~~Line 1~~
~~(A) Two (2) LPW welding, identified as LPW1-1 to LPW1-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, and each controlled by a bag filter (LPWBF1 to LPWBF2) respectively, exhausting to stack (LPW)~~

~~Line 2~~
~~(B) Two (2) LPW welding, identified as LPW2-1 to LPW2-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, and each controlled by a bag filter (LPWBF3 to LPWBF4) respectively, exhausting to stack (LPW)~~

~~Line 3~~
~~(C) Two (2) LPW welding, identified as LPW3-1 to LPW3-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, and each controlled by a bag filter (LPWBF5 to LPWBF6) respectively, exhausting to stack (LPW)~~

~~Line 4~~
~~(D) Two (2) LPW welding, identified as LPW4-1 to LPW4-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, and each controlled by a bag filter (LPWBF7 to LPWBF8) respectively, exhausting to stack (LPW)~~

~~(3) Four (4) CanCap Welding lines, consisting of the following:~~

~~Line 1~~
~~(A) Two (2) CanCap welding, identified as CanCap1-1 to CANCAP1-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (CANCAPBF1 to CANCAPBF2) respectively, exhausting to stack (CANCAP).~~

~~Line 2~~

~~(B) Two (2) CanCap welding, identified as CANCAP2-1 to CANCAP2-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (CANCAPBF3 to CANCAPBF4) respectively, exhausting to stack (CANCAP).~~

~~Line 3~~

~~(C) Two (2) CanCap welding, identified as CANCAP3-1 to CANCAP3-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (CANCAPBF5 to CANCAPBF6) respectively, exhausting to stack (CANCAP).~~

~~Line 4~~

~~(D) Two (2) CanCap welding, identified as CANCAP4-1 to CANCAP4-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (CANCAPBF7 to CANCAPBF8) respectively, exhausting to stack (CANCAP).~~

~~(4) One (1) electrolyte filling process, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, with a nominal throughput of 2,096 cells/hr, using Activated Carbon Towers (CAT-02a, CAT-02b, CAT-02c, CAT-02d, & CAT-02e Standby) for VOC/HAP control, exhausting to stack (S-2a, S-2b, S-2c, S-2d, and S-2e Standby).~~

~~(n) One (1) formation process, identified as Formation, approved in 2023 for construction, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).~~

~~(1) One (1) taping process, consisting of the following:~~

~~(A) One (1) taping machine, identified as TM-1, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF1-TMBF4), exhausting indoor.~~

~~(B) One (1) taping machine, identified as TM-2, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF5-TMBF8), exhausting indoor.~~

~~(C) One (1) taping machine, identified as TM-3, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF9-TMBF12), exhausting indoor.~~

~~(D) One (1) taping machine, identified as TM-4, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF13-TMBF16), exhausting indoor.~~

~~(E) One (1) taping machine, identified as TM-5, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF17-TMBF20), exhausting indoor.~~

~~(F) One (1) taping machine, identified as TM-6, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF21-TMBF24), exhausting indoor.~~

(G) One (1) taping machine, identified as TM-7, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF25-TMBF28), exhausting indoor.

(H) One (1) taping machine, identified as TM-8, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF29-TMBF32), exhausting indoor.

(2) Four (4) SealPin Welding lines, consisting of the following:

Line 1

(A) Two (2) seal pin welding, identified as SPW1-1 to SPW1-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (SPWBF1), exhausting to stack (SPW).

Line 2

(B) Two (2) seal pin welding, identified as SPW2-1 to SPW2-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (SPWBF2) respectively, exhausting to stack (SPW).

Line 3

(C) Two (2) seal pin welding, identified as SPW3-1 to SPW3-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (SPWBF3) respectively, exhausting to stack (SPW).

Line 4

(D) Two (2) seal pin welding, identified as SPW4-1 to SPW4-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (SPW4) respectively, exhausting to stack (SPW).

(3) Four (4) HVC Front Side Moving Device, identified as HVC1-HVC4, approved in 2023 for construction, with a combined nominal capacity of 8,114 cells/hr, and Activated Carbon Tower (CAT-03a, CAT-03b & CAT-03c /Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(e) One (1) module process, identified as Module, approved in 2023 for construction, and consisting of the following

Line 1

(1) One (1) frame side welding, identified as FSW1, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF1), exhausting to stack (M).

(2) One (1) busbar welding, identified as BW1, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MB2), exhausting to stack (M).

(3) One (1) side dispenser, identified as SD1, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB1, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA1-PSA2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.

~~(6) Two (2) curing station, identified as CS1-CS2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~Line 2~~

~~(7) One (1) frame side welding, identified as FSW2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF3), exhausting to stack (M).~~

~~(8) One (1) busbar welding, identified as BW2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF4), exhausting to stack (M).~~

~~(9) One (1) side dispenser, identified as SD2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(10) One (1) HBB dispenser, identified as HBB2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(11) Two (2) PSA dispensers, identified as PSA3-PSA4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(12) Two (2) curing station, identified as CS3-CS4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~Line 3~~

~~(13) One (1) frame side welding, identified as FSW3, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF5), exhausting to stack (M).~~

~~(14) One (1) busbar welding, identified as BW3, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF6), exhausting to stack (M).~~

~~(15) One (1) side dispenser, identified as SD3, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(16) One (1) HBB dispenser, identified as HBB3, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(17) Two (2) PSA dispensers, identified as PSA5-PSA6, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(18) Two (2) curing station, identified as CS5-CS6, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~Line 4~~

~~(19) One (1) frame side welding, identified as FSW4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF7), exhausting to stack (M).~~

~~(20) One (1) busbar welding, identified as BW4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF8), exhausting to stack (M).~~

~~(21) One (1) side dispenser, identified as SD4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(22) One (1) HBB dispenser, identified as HBB4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(23) Two (2) PSA dispensers, identified as PSA7-PSA8, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(24) Two (2) curing station, identified as CS7-CS8, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]~~

~~This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):~~

~~(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.~~

~~Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.~~

~~Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.~~

~~(b) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2023 for construction, with a maximum heat input capacity of 5.0 MMBTU/hr, each, using no control, and exhausting to the atmosphere.~~

~~(c) One (1) natural gas-fired hot water heater, identified as W-Heating, approved in 2023 for construction, with a maximum heat input capacity of 15.0 MMBTU/hr, using no control, and exhausting to the atmosphere.~~

~~(d) Sixty (60) natural gas-fired space heaters, identified as S-Heating01 through S-Heating-60, approved in 2023 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.~~

~~(e) One (1) diesel fire pump, identified as F-pump, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.~~

~~Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.~~

~~Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.~~

~~(f) Four (4) cooling towers, identified as CWT01-CWT04, approved in 2023 for construction, with a maximum capacity of 120,000 gal/min each, using no control, and exhausting to atmosphere.~~

~~(g) Maintenance welding, gas metal arc welding (GMAW), 5,000 lbs of carbon steel electrode per year, uncontrolled, and exhausting to the indoors.~~

~~(h) Maintenance painting, using aerosol cans, with a maximum usage of five (5) 12oz cans per week uncontrolled, and exhausting to the indoors.~~

~~(i) Paved roads and parking lots with public access.~~

~~A.4 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]~~

~~This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21):~~

~~(a) One (1) electrolyte storage tank, identified as EST-1, approved in 2023 for construction, with a nominal capacity of 528 gallons and annual throughput of 1,569 gal/hr, using Activated Carbon Tower (CAT-06) as control, and exhausting to stack (S-6).~~

~~(b) One (1) used battery storage room, identified as USB, approved in 2023 for construction, used for discharging used lithium-ion batteries, with a nominal capacity of 4.87 cells/hr, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5).~~

~~(c) One (1) used/recovered nmp storage tank, identified as NMPRT06, approved in 2023 for construction, with a nominal capacity of 528 gallons, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5).~~

~~(d) One (1) innovation process for research and development, identified as R&D, uncontrolled, and exhausting to the indoors.~~

~~(e) One (1) wastewater treatment plant.~~

~~(f) One (1) diesel storage tank, identified as DST-1, approved in 2023 for construction, with a maximum capacity of 500 gallons, using no control, and exhausting to the atmosphere~~

~~A.5 Part 70 Permit Applicability [326 IAC 2-7-2]~~

~~This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:~~

~~(a) It is a major source, as defined in 326 IAC 2-7-1(22);~~

~~(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).~~

A.1 General Information [326 IAC 2-7-4(c)][326 IAC 2-7-5(14)][326 IAC 2-7-1(22)]

The Permittee owns and operates a stationary Lithium Ion battery manufacturing operation.

Source Address:	**2724 N. 50 E., Kokomo, Indiana 46901**
General Source Phone Number:	**(248) 978 4225**
SIC Code:	**3691 (Storage Batteries), 2869 (Industrial Organic Chemicals, Not Elsewhere Classified)**
County Location:	**Howard**
Source Location Status:	**Attainment for all criteria pollutants**

Source Status: **Part 70 Operating Permit Program**
Minor Source, under PSD and Emission Offset Rules
Minor Source, Section 112 of the Clean Air Act
Not 1 of 28 Source Categories (Battery Manufacturing Operation)
Nested Source (Chemical Process Plant) is 1 of 28 Source Categories, within a non-listed source
Nested Minor Source, under PSD and Emission Offset Nested Minor source, under Section 112 of the Clean Air Act

A.2 Part 70 Source Definition [326 IAC 2-7-1(22)]

This source consists of two (2) plants:

(a) JWA CO., LTD.'s plant located at 1679 East Sparks Road, Kokomo, IN 46901 (067-00096) making chemicals, and

(b) StarPlus Energy LLC's plant located at 2724 N. 50 E., Kokomo, Indiana 46901 (Source ID 067-00093), manufacturing storage batteries.

IDEM has determined that JWA CO., LTD. and StarPlus Energy LLC are under the common control of Samsung SDI America and Stellantis. These two plants are considered one source because they are located on adjacent properties, are under common ownership, and JWA CO., LTD. is a support facility for StarPlus Energy LLC. JWA CO., LTD.'s operations are included as part of StarPlus Energy LLC's Part 70 operating source. Therefore, the term "source" in the Part 70 documents refers to both JWA CO., LTD. and StarPlus Energy LLC as one source.

Separate Part 70 renewal permits have been issued to StarPlus Energy LLC and JWA CO., LTD, solely for administrative purposes.

(a) StarPlus Energy LLC -- Part 70 Operating Permit 067-45648-00093

(b) JWA CO., LTD. -- Part 70 Administrative Permit 067-47041-0009

This determination was initially made under Part 70 Administrative Operating Permit No. 067-47041-00096, issued on February 20, 2024.

A.3 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)][326 IAC 2-7-5(14)]

This stationary source consists of the following emission units and pollution control devices:

Plant 1:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 1-4	1,057	105	918,079	2023*	Bag filter CBF15	01-PEF-03-05

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) HD Mixer Tanks	HD 1-4	634			2023*	Bag filter CBF2	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 1-2	792			2023*	Bag filter CBF8	01-PEF-03-05
One (1) Binder Booth	Binder booth 1	528			2023*	Bag filter CBF16	01-PEF-03-05
Four (4) Cathode Silos	Cathode silo 1-4	1,057			2023*	Bag filter CBF7	01-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 1-4	528			2023*	Bag filter CBF7	01-PEF-03-05
Two (2) Binder Mixers tanks	Binder Mixer 1-2	528			2023*	Bag filter CBF1	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 1-4	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Emf Buffer Tank	EMFBT 1-4	528			2023*		
Seven (7) Storage Tanks	ST 1-7	528			2023*		
One (1) Coater Buffer Tank	CBT 1	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 5-7	1057	105	918,079	2023*	Bag filter CBF17	01-PEF-03-05
Three (3) HD Mixer Tanks	HD 5-7	634			2023*	Bag filter CBF3	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 3-4	792			2023*	Bag filter CBF10	01-PEF-03-05

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
One (1) Binder Booth	Binder Booth 2	528			2023*	Bag filter CBF18	01-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 5-7	1057			2023*	Bag filter CBF9	01-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 5-7	528			2023*	Bag filter CBF9	01-PEF-03-05
Two (2) Binder Mixers	Binder Mixer 3-4	528			2023*	Bag filter CBF1	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Binder Storage Tanks	BST 5-8	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	
Three (3) Emf Buffer Tank	EMFBT 5-7	528			2023*		
Seven (7) Storage Tanks	ST 8-14	528			2023*		
One (1) Coater Buffer Tank	CBT 2	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 8-11	1057	105	918,079	2023*	Bag filter CBF19	01-PEF-03-05
Four (4) HD Mixer Tanks	HD 8-11	634			2023*	Bag filter CBF5	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 5-6	792			2023*	Bag filter CBF12	01-PEF-03-05
One (1) Binder Booth	Binder booth 3	528			2023*	Bag filter CBF20	01-PEF-03-05
Four (4) Cathode Silos	Cathode silo 8-11	1057			2023*	Bag filter CBF11	01-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 8-11	528			2023*	Bag filter CBF11	01-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 5-6	528			2023*	Bag filter CBF4	01-PEF-03-05
						CAT-01a, CAT-01b and	S-1a, S-1b, and
Four (4) Binder Storage Tanks	BST 9-12	528			2023*		

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Emf Buffer Tank	EMFBT 8-11	528			2023*	CAT-01c Standby	S-1c Standby
Seven (7) Storage Tanks	ST 15-21	528			2023*		
One (1) Coater Buffer Tank	CBT 3	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 12-14	1057	105	918,079	2023*	Bag filter CBF21	01-PEF-03-05
Three (3) HD Mixer Tanks	HD 12-14	634			2023*	Bag filter CBF6	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 7-8	792			2023*	Bag filter CBF14	01-PEF-03-05
One (1) Binder Booth	Binder Booth 4	528			2023*	Bag filter CBF22	01-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 12-14	1057			2023*	Bag filter CBF13	01-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 12-14	528			2023*	Bag filter CBF13	01-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 7-8	528			2023*	Bag filter CBF4	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 13-16	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Three (3) Emf Buffer Tank	EMFBT 12-14	528			2023*		
Seven (7) Storage Tanks	ST 22-28	528			2023*		
One (1) Coater Buffer Tank	CBT 4	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as NMPST 1 and NMPST 2; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 3 and NMPST 4.

Under 40 CFR 63, Subpart CCCCCCC, the NMP Storage Tanks associated with the cathode raw material handling and mixing line is considered an affected source.

(f) One (1) Anode raw material handling and mixing line, identified as ALine1, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 1-3	608	125	1,091,590	2023*	Bag filter ABF2	01-PEF-01-02
Three (3) PD Mixers	PDM 4-6	608			2023*	Bag filter ABF3	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 1-3	528			2023*	Bag filter ABF1	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 1	792			2023*	Bag filter ABF20	01-PEF-01-02
One (1) CMC Booth	CMC Booth 1	792			2023*	Bag filter ABF20	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 1-2	792			2023*	Bag filter ABF12	01-PEF-01-02
One (1) CMC Silo	CMC Silo 1	792			2023*	Bag filter ABF 12	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 1-4	1057			2023*	Bag filter ABF19	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 1-4	1057			2023*	Bag filter ABF11	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 1-6	528			2023*	Bag filter ABF11	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 1-6	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 1	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 1-12	528			2023*		
Two (2) Coater Buffer Tanks	CBT 1-2	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**

***** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02**

(g) One (1) Anode raw material handling and mixing line, identified as ALine2, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 7-9	608	125	1,091,590	2023*	Bag filter ABF4	01-PEF-01-02
Three (3) PD Mixers	PDM 10-12	608			2023*	Bag filter ABF5	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 4-6	528			2023*	Bag filter ABF1	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 2	792			2023*	Bag filter ABF22	01-PEF-01-02
One (1) CMC Booth	CMC Booth 2	792			2023*	Bag filter ABF22	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 3-4	792			2023*	Bag filter ABF14	01-PEF-01-02
One (1) CMC Silo	CMC Silo 2	792			2023*	Bag filter ABF 14	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 5-8	1057			2023*	Bag filter ABF21	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 5-8	1057			2023*	Bag filter ABF13	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 7-12	528			2023*	Bag filter ABF13	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 7-12	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 2	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 13-24	528			2023*		
Two (2) Coater Buffer Tanks	CBT 3-4	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02**

(h) One (1) Anode raw material handling and mixing line, identified as ALine 3, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 13-15	608	125	1,091,590	2023*	Bag filter ABF7	01-PEF-01-02

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 16-18	608			2023*	Bag filter ABF8	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 7-9	528			2023*	Bag filter ABF6	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 3	792			2023*	Bag filter ABF24	01-PEF-01-02
One (1) CMC Booth	CMC Booth 3	792			2023*	Bag filter ABF24	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 5-6	792			2023*	Bag filter ABF16	01-PEF-01-02
One (1) CMC Silo	CMC Silo 3	792			2023*	Bag filter ABF16	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 9-12	1057			2023*	Bag filter ABF23	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 9-12	1057			2023*	Bag filter ABF15	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 13-18	528			2023*	Bag filter ABF15	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 13-18	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 3	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 25-36	528			2023*		
Two (2) Coater Buffer Tanks	CBT 5-6	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02**

(i) One (1) Anode raw material handling and mixing line, identified as ALine 4, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 19-21	608	125	1,091,590	2023*	Bag filter ABF9	01-PEF-01-02
Three (3) PD Mixers	PDM 22-24	608			2023*	Bag filter ABF10	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 10-12	528			2023*	Bag filter ABF6	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 4	608			2023*	Bag filter ABF26	01-PEF-01-02
One (1) CMC Booth	CMC Booth 4	608			2023*	Bag filter ABF26	01-PEF-01-02

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Two (2) Anode Conductive Powder Silos	ACPS 7-8	528			2023*	Bag filter ABF18	01-PEF-01-02
One (1) CMC Silo	CMC Silo 4	608			2023*	Bag filter ABF 18	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 13-16	608			2023*	Bag filter ABF25	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 13-16	528			2023*	Bag filter ABF17	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 19-24	528			2023*	Bag filter ABF17	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 19-24	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 4	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 37-48	528			2023*		
Two (2) Coater Buffer Tanks	CBT 7-8	528			2023*		

*** Year approved for construction**
**** Per individual unit**
***** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02**

(j) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat1, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-01, exhausting to stack SR-01.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat2, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-02, exhausting to stack SR-02.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat3, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-03, exhausting to stack SR-03.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat4, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-04, exhausting to stack SR-04.

(k) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat1, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat2, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat3, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat4, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(l) Anode slitting process, consisting of the following:

(1) One (1) Anode slitter, identified as AS1, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF1-ASBF4), and exhausting to stack (01-DCEF-1).

(2) One (1) Anode slitter, identified as AS2, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF5-ASBF8), and exhausting to stack (01-DCEF-1).

(3) One (1) Anode slitter, identified as AS3, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF9-ASBF12), and exhausting to stack (01-DCEF-1).

(4) One (1) Anode slitter, identified as AS4, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF13-ASBF16), and exhausting to stack (01-DCEF-1).

(m) Cathode slitting process, consisting of the following:

(1) One (1) Cathode slitter, identified as CS1, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF1-CSBF4), and exhausting to stack (01-DCEF-2).

(2) One (1) Cathode slitter, identified as CS2, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF5-CSBF8), and exhausting to stack (01-DCEF-2).

(3) One (1) Cathode slitter, identified as CS3, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF9-CSBF12), and exhausting to stack (01-DCEF-2).

(4) One (1) Cathode slitter, identified as CS4, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF13-CSBF16), and exhausting to stack (01-DCEF-2).

(n) One (1) Assembly process, consisting of the following:

(1) Four (4) Stacking Lines, consisting of the following:

Line 1

(A) Thirty-two (32) stackers, identified as S1_1 to S1_32, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S1_BF1 to S1_BF32) respectively, exhausting to stack (01-DCEF-3).

Line 2

(B) Thirty-two (32) stackers, identified as S2_1 to S2_32, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S2_BF1 to S2_BF32) respectively, exhausting to stack (01-DCEF-4).

Line 3

(C) Twenty-five (25) stackers, identified as S3_1 to S3_25, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S3_BF1 to S3_BF25) respectively, exhausting to stack (01-DCEF-5).

Line 4

(D) Twenty-five (25) stackers, identified as S4_1 to S4_25, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S4_BF1 to S4_BF25) respectively, exhausting to stack (01-DCEF-6).

(2) Four (4) LPW lines, consisting of the following:

Line 1

(A) Two (2) LPW welding, identified as LPW1-1 to LPW1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF1 to LPWBF2) respectively, exhausting to stack (01-DCEF-7).

Line 2

(B) Two (2) LPW welding, identified as LPW2-1 to LPW2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF3 to LPWBF4) respectively, exhausting to stack (01-DCEF-7).

Line 3

(C) Two (2) LPW welding, identified as LPW3-1 to LPW3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF5 to LPWBF6) respectively, exhausting to stack (01-DCEF-7).

Line 4

(D) Two (2) LPW welding, identified as LPW4-1 to LPW4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF7 to LPWBF8) respectively, exhausting to stack (01-DCEF-7).

(3) Four (4) CanCap Welding lines, consisting of the following:

Line 1

(A) Two (2) CanCap welding, identified as CanCap1-1 to CANCAP1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF1 to CANCAPBF2) respectively, exhausting to stack (01-DCEF-8).

Line 2

(B) Two (2) CanCap welding, identified as CANCAP2-1 to CANCAP2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF3 to CANCAPBF4) respectively, exhausting to stack (01-DCEF-8).

Line 3

(C) Two (2) CanCap welding, identified as CANCAP3-1 to CANCAP3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF5 to CANCAPBF6) respectively, exhausting to stack (01-DCEF-8).

Line 4

(D) Two (2) CanCap welding, identified as CANCAP4-1 to CANCAP4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF7 to CANCAPBF8) respectively, exhausting to stack (01-DCEF-8).

(4) Four (4) electrolyte filling processes, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, approved for construction in 2023 and approved for modification in 2024, using Activated Carbon Towers (CAT-02a, CAT-02b, CAT-02c, CAT-02d, & CAT-02e Standby) for VOC/HAP control for all four lines, exhausting to stack (S-2a, S-2b, S-2c, S-2d, and S-2e Standby), consisting of the following:

Line 1

(A) Eight (8) electrolyte filling machines, identified as EFM1-EFM8, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 2

(B) Eight (8) electrolyte filling machines, identified as EFM9-EFM16, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 3

(B) Eight (8) electrolyte filling machines identified as EFM17-EFM24, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 4

(C) Eight (8) electrolyte filling machines, identified as EFM25-EFM32, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

(o) One (1) formation process, identified as Formation, approved in 2023 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(1) One (1) taping process, with a combined maximum process capacity of 3,588 cells per hour, total, consisting of the following:

(A) One (1) taping machine, identified as TM-1, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF1-TMBF4), exhausting through general exhaust stack 02-EF-301-302.

(B) One (1) taping machine, identified as TM-2, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF5-TMBF8), exhausting through general exhaust stack 02-EF-301-302.

(C) One (1) taping machine, identified as TM-3, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF9-TMBF12), exhausting through general exhaust stack 02-EF-301-302.

(D) One (1) taping machine, identified as TM-4, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF13-TMBF16), exhausting through general exhaust stack 02-EF-301-302.

(E) One (1) taping machine, identified as TM-5, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF17-TMBF20), exhausting through general exhaust stack 02-EF-301-302.

(F) One (1) taping machine, identified as TM-6, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF21-TMBF24), exhausting through general exhaust stack 02-EF-301-302.

(G) One (1) taping machine, identified as TM-7, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF25-TMBF28), exhausting through general exhaust stack 02-EF-301-302.

(H) One (1) taping machine, identified as TM-8, approved in 2023 for construction and approved in 2024 for modification, and controlled by bag filters (TMBF29-TMBF32), exhausting through general exhaust stack 02-EF-301-302.

(2) Four (4) SealPin Welding lines, consisting of the following:

Line 1

(A) Two (2) seal pin welding, identified as SPW1-1 to SPW1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (SPWBF1), exhausting through general exhaust stack 02-301-302.

Line 2

(B) Two (2) seal pin welding, identified as SPW2-1 to SPW2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF2) respectively, exhausting through general exhaust stack 02-EF-301-302.

Line 3

(C) Two (2) seal pin welding, identified as SPW3-1 to SPW3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF3) respectively, exhausting through general exhaust stack 02-EF-301-302.

Line 4

(D) Two (2) seal pin welding, identified as SPW4-1 to SPW4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF4) respectively, exhausting to through general exhaust stack 02-EF-301-302.

(3) Four (4) HVC Front Side Moving Device, identified as HVC1-HVC4, approved in 2023 for construction and approved in 2024 for modification, with a combined maximum capacity of 3,588 cells/hr, and Activated Carbon Tower (CAT-03a, CAT-03b & CAT-03c /Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(p) One (1) module process, identified as Module, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following

Line 1

(1) One (1) frame side welding, identified as FSW1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897cells/hr, total, and controlled by a bag filter (MBF1), exhausting through general exhaust stack 02-EF-301-302.

(2) One (1) busbar welding, identified as BW1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF2), exhausting through general exhaust stack 02-EF-301-302.

(3) One (1) side dispenser, identified as SD1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA1-PSA2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(6) Two (2) curing stations, identified as CUS1-CUS2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(7) One (1) Frame end welding, identified as FEW1, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF9), exhausting through general exhaust stack 02-EF-301-302.

Line 2

(8) One (1) frame side welding, identified as FSW2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF3), exhausting through general exhaust stack 02-EF-301-302.

(9) One (1) busbar welding, identified as BW2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF4), exhausting through general exhaust stack 02-EF-301-302.

(10) One (1) side dispenser, identified as SD2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(11) One (1) HBB dispenser, identified as HBB2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(12) Two (2) PSA dispensers, identified as PSA3-PSA4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(13) Two (2) curing stations, identified as CUS3-CUS4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(14) One (1) Frame end welding, identified as FEW2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF10), exhausting through general exhaust stack 02-EF-301-302.

Line 3

(15) One (1) frame side welding, identified as FSW3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF5), exhausting through general exhaust stack 02-EF-301-302.

(16) One (1) busbar welding, identified as BW3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF6), exhausting through general exhaust stack 02-EF-301-302.

(17) One (1) side dispenser, identified as SD3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(18) One (1) HBB dispenser, identified as HBB3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(19) Two (2) PSA dispensers, identified as PSA5-PSA6, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(20) Two (2) curing station, identified as CUS5-CUS6, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(21) One (1) Frame end welding, identified as FEW3, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF11), exhausting through general exhaust stack 02-EF-301-302.

Line 4

(22) One (1) frame side welding, identified as FSW4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF7), exhausting through general exhaust stack 02-EF-301-302.

(23) One (1) busbar welding, identified as BW4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF8), exhausting through general exhaust stack 02-EF-301-302.

(24) One (1) side dispenser, identified as SD4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(25) One (1) HBB dispenser, identified as HBB4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(26) Two (2) PSA dispensers, identified as PSA7-PSA8, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(27) Two (2) curing station, identified as CUS7-CUS8, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(28) One (1) Frame end welding, identified as FEW4, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF12), exhausting through general exhaust stack 02-EF-301-302.

(q) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

Plant 2:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 5, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 15-18	1,057	105	918,079	2024*	Bag filter CBF42	02-PEF-03-05
Four (4) HD Mixer Tanks	HD 15-18	634			2024*	Bag filter CBF29	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 9-10	792			2024*	Bag filter CBF35	02-PEF-03-05
One (1) Binder Booth	Binder booth 5	528			2024*	Bag filter CBF40	02-PEF-03-05
Four (4) Cathode Silos	Cathode silo 15-18	1,057			2024*	Bag filter CBF34	02-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 15-18	528			2024*	Bag filter CBF34	02-PEF-03-05
Two (2) Binder Mixers tanks	Binder Mixer 9-10	528			2024*	Bag filter CBF28	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 15-18	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Emf Buffer Tank	EMFBT 15-18	528			2024*		
Seven (7) Storage Tanks	ST 29-35	528			2024*		
One (1) Coater Buffer Tank	CBT 5	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 6, approved in 2024 for construction, and consisting of the following

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 19-21	1057	105	918,079	2024*	Bag filter CBF44	02-PEF-03-05
Three (3) HD Mixer Tanks	HD 19-21	634			2024*	Bag filter CBF30	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 11-12	792			2024*	Bag filter CBF37	02-PEF-03-05
One (1) Binder Booth	Binder Booth 6	528			2024*	Bag filter CBF45	02-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 19-21	1057			2024*	Bag filter CBF36	02-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 19-21	528			2024*	Bag filter CBF36	02-PEF-03-05
Two (2) Binder Mixers	Binder Mixer 11-12	528			2024*	Bag filter CBF28	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Binder Storage Tanks	BST 21-24	528			2024*		
Three (3) Emf Buffer Tank	EMFBT 19-21	528			2024*		
Seven (7) Storage Tanks	ST 36-42	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	
One (1) Coater Buffer Tank	CBT 6	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 7, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 22-25	1057	105	918,079	2024*	Bag filter CBF46	02-PEF-03-05

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) HD Mixer Tanks	HD 22-25	634			2024*	Bag filter CBF32	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 13-14	792			2024*	Bag filter CBF39	02-PEF-03-05
One (1) Binder Booth	Binder booth 7	528			2024*	Bag filter CBF47	02-PEF-03-05
Four (4) Cathode Silos	Cathode silo 22-25	1057			2024*	Bag filter CBF38	02-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 22-25	528			2024*	Bag filter CBF38	02-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 13-14	528			2024*	Bag filter CBF31	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 25-28	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Emf Buffer Tank	EMFBT 22-25	528			2024*		
Seven (7) Storage Tanks	ST 43-49	528			2024*		
One (1) Coater Buffer Tank	CBT 7	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 8, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 26-28	1057	105	918,079	2024*	Bag filter CBF48	02-PEF-03-05
Three (3) HD Mixer Tanks	HD 26-28	634			2024*	Bag filter CBF33	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 15-16	792			2024*	Bag filter CBF41	02-PEF-03-05
One (1) Binder Booth	Binder Booth 8	528			2024*	Bag filter CBF49	02-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 26-28	1057			2024*	Bag filter CBF43	02-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 26-28	528			2024*	Bag filter CBF43	02-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 15-16	528			2024*	Bag filter CBF31	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 29-32	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Three (3) Emf Buffer Tank	EMFBT 26-28	528			2024*		
Seven (7) Storage Tanks	ST 50-56	528			2024*		
One (1) Coater Buffer Tank	CBT 8	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction, using Activated Carbon Towers (CAT-10a, CAT-10b, CAT-10c, CAT-10d, & CAT-10e Standby) for VOC/HAP control, exhausting to stack (S-10a, S-10b, S-10c, S-10d, and 10-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as Tanks NMPST 5 and NMPST 6; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 7 and NMPST 8.

Under 40 CFR 63, Subpart CCCCCCC, the NMP Storage Tanks associated with the cathode raw material handling and mixing line is considered an affected source.

(f) One (1) Anode raw material handling and mixing line, identified as Aline5, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 25-27	608	125	1,091,590	2024*	Bag filter ABF29	02-PEF-01-02
Three (3) PD Mixers	PDM 28-30	608			2024*	Bag filter ABF30	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 13-15	528			2024*	Bag filter ABF28	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 5	792			2024*	Bag filter ABF47	02-PEF-01-02
One (1) CMC Booth	CMC Booth 5	792			2024*	Bag filter ABF47	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 9-10	792			2024*	Bag filter ABF39	02-PEF-01-02
One (1) CMC Silo	CMC Silo 5	792			2024*	Bag filter ABF 39	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 17--20	1057			2024*	Bag filter ABF46	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 17-20	1057			2024*	Bag filter ABF38	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 25-30	528			2024*	Bag filter ABF38	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 25-30	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 5	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 49-60	528			2024*		
Two (2) Coater Buffer Tanks	CBT 9-10	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02**

(g) One (1) Anode raw material handling and mixing line, identified as Aline6, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 31-33	608	125	1,091,590	2024*	Bag filter ABF31	02-PEF-01-02
Three (3) PD Mixers	PDM 34-36	608			2024*	Bag filter ABF32	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 16-18	528			2024*	Bag filter ABF28	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 6	792			2024*	Bag filter ABF49	02-PEF-01-02
One (1) CMC Booth	CMC Booth 6	792			2024*	Bag filter ABF49	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 11-12	792			2024*	Bag filter ABF41	02-PEF-01-02
One (1) CMC Silo	CMC Silo 6	792			2024*	Bag filter ABF 41	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 21-24	1057			2024*	Bag filter ABF48	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 21-24	1057			2024*	Bag filter ABF40	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 31-36	528			2024*	Bag filter ABF40	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 31-36	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 6	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 61-72	528			2024*		
Two (2) Coater Buffer Tanks	CBT 11-12	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02**

(h) One (1) Anode raw material handling and mixing line, identified as ALine 7, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 37-39	608	125	1,091,590	2024*	Bag filter ABF34	02-PEF-01-02
Three (3) PD Mixers	PDM 40-42	608			2024*	Bag filter ABF35	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 19-21	528			2024*	Bag filter ABF33	02-PEF-01-02

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
One (1) Anode Conductive Powder Booth	ACPB 7	792			2024*	Bag filter ABF51	02-PEF-01-02
One (1) CMC Booth	CMC Booth 7	792			2024*	Bag filter ABF51	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 13-14	792			2024*	Bag filter ABF43	02-PEF-01-02
One (1) CMC Silo	CMC Silo 7	792			2024*	Bag filter ABF43	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 25-28	1057			2024*	Bag filter ABF50	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 25-28	1057			2024*	Bag filter ABF42	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 37-42	528			2024*	Bag filter ABF42	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 37-42	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 7	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 73-84	528			2024*		
Two (2) Coater Buffer Tanks	CBT 13-14	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02**

(l) One (1) Anode raw material handling and mixing line, identified as ALine 8, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 43-45	608	125	1,091,590	2024*	Bag filter ABF36	02-PEF-01-02
Three (3) PD Mixers	PDM 46-48	608			2024*	Bag filter ABF37	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 22-24	528			2024*	Bag filter ABF33	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 8	608			2024*	Bag filter ABF53	02-PEF-01-02
One (1) CMC Booth	CMC Booth 8	608			2024*	Bag filter ABF53	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 15-16	528			2024*	Bag filter ABF45	02-PEF-01-02
One (1) CMC Silo	CMC Silo 8	608			2024*	Bag filter ABF 45	02-PEF-01-02

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Four (4) Anode Inlets	Anode Inlet 29-32	608			2024*	Bag filter ABF52	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 29-32	528			2024*	Bag filter ABF44	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 43-48	528			2024*	Bag filter ABF44	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 43-48	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 8	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 85-96	528			2024*		
Two (2) Coater Buffer Tanks	CBT 15-16	528			2024*		

*** Year approved for construction**
**** Per individual unit**
***** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02**

(j) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat5, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-05, exhausting to stack SR-05.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat6, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-06, exhausting to stack SR-06.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat7, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-07, exhausting to stack SR-07.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat8, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-08, exhausting to stack SR-08.

(k) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat5, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat6, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat7, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat8, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(l) Anode slitting process, consisting of the following:

(1) One (1) Anode slitter, identified as AS5, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF17-ASBF20), and exhausting to stack (02-DCEF-1).

(2) One (1) Anode slitter, identified as AS6, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF21-ASBF24), and exhausting to stack (02-DCEF-1).

(3) One (1) Anode slitter, identified as AS7, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF25-ASBF28), and exhausting to stack (02-DCEF-1).

(4) One (1) Anode slitter, identified as AS8, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF29-ASBF32), and exhausting to stack (02-DCEF-1).

(m) Cathode slitting process, consisting of the following:

(1) One (1) Cathode slitter, identified as CS5, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF17-CSBF20), and exhausting to stack (02-DCEF-2).

(2) One (1) Cathode slitter, identified as CS6, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF21-CSBF24), and exhausting to stack (02-DCEF-2).

(3) One (1) Cathode slitter, identified as CS7, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF25-CSBF28), and exhausting to stack (02-DCEF-2).

(4) One (1) Cathode slitter, identified as CS8, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF29-CSBF32), and exhausting to stack (02-DCEF-2).

(n) One (1) Assembly process, consisting of the following:

(1) Four (4) Stacking Lines, consisting of the following:

Line 5

(A) Thirty-two (32) stackers, identified as S5_1 to S5_32, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each

controlled by a bag filter (S5_BF1 to S5_BF32) respectively, exhausting to stack (02-DCEF-3).

Line 6

(B) Thirty-two (32) stackers, identified as S6_1 to S6_32, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S4_BF1 to S4_BF32) respectively, exhausting to stack (02-DCEF-4).

Line 7

(C) Twenty-five (25) stackers, identified as S7_1 to S7_25, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S7_BF1 to S7_BF25) respectively, exhausting to stack (02-DCEF-5).

Line 8

(D) Twenty-five (25) stackers, identified as S8_1 to S8_25, approved in 2023 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S8_BF1 to S8_BF25) respectively, exhausting to stack (02-DCEF-6).

(2) Four (4) LPW lines, consisting of the following:

Line 5

(A) Two (2) LPW welding, identified as LPW5-1 to LPW5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF9 to LPWBF10) respectively, exhausting to stack (02-DCEF-7).

Line 6

(B) Two (2) LPW welding, identified as LPW6-1 to LPW6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF11 to LPWBF12) respectively, exhausting to stack (02-DCEF-7).

Line 7

(C) Two (2) LPW welding, identified as LPW7-1 to LPW7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF13 to LPWBF14) respectively, exhausting to stack (02-DCEF-7).

Line 8

(D) Two (2) LPW welding, identified as LPW8-1 to LPW8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF15 to LPWBF16) respectively, exhausting to stack (02-DCEF-7).

(3) Four (4) CanCap Welding lines, consisting of the following:

Line 5

(A) Two (2) CanCap welding, identified as CanCap5-1 to CANCAP5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF9 to CANCAPBF10) respectively, exhausting to stack (02-DCEF-8).

Line 6

(B) Two (2) CanCap welding, identified as CANCAP6-1 to CANCAP6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF11 to CANCAPBF12) respectively, exhausting to stack (02-DCEF-8).

Line 7

(C) Two (2) CanCap welding, identified as CANCAP7-1 to CANCAP7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF13 to CANCAPBF14) respectively, exhausting to stack (02-DCEF-8).

Line 8

(D) Two (2) CanCap welding, identified as CANCAP8-1 to CANCAP8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF15 to CANCAPBF16) respectively, exhausting to stack (02-DCEF-8).

(4) Four (4) electrolyte filling processes, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, approved for construction in 2024, using Activated Carbon Towers (CAT-04a, CAT-04, CAT-04c, CAT-04d, & CAT-04e Standby) for VOC/HAP control, exhausting to stack (S-4a, S-4b, S-4c, S-4d, and S-4e Standby), consisting of the following:

Line 5

(A) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 6

(B) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 7

(C) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 8

(D) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

(o) One (1) formation process, identified as Formation, approved in 2024 for construction, using Activated Carbon Towers (CAT-11a, CAT-11b, CAT-11c, CAT-11d, & CAT-11e Standby) for VOC/HAP control, exhausting to stack (S-11a, S-11b, S-11c, S-11d, and S-11e Standby).

(1) One (1) taping process, with a combined maximum process capacity of 3,588 cells per hour, total, consisting of the following:

(A) One (1) taping machine, identified as TM-9, approved in 2024 for construction, controlled by bag filters (TMBF33-TMBF36), exhausting through general exhaust stack 03-EF-301-302.

(B) One (1) taping machine, identified as TM-10, approved in 2024 for construction, controlled by bag filters (TMBF37-TMBF40), exhausting through general exhaust stack 03-EF-301-302.

(C) One (1) taping machine, identified as TM-11, approved in 2023 for construction, controlled by bag filters (TMBF41-TMBF44), exhausting through general exhaust stack 03-EF-301-302.

(D) One (1) taping machine, identified as TM-12, approved in 2024 for construction, controlled by bag filters (TMBF45-TMBF48), exhausting through general exhaust stack 03-EF-301-302.

(E) One (1) taping machine, identified as TM-13, approved in 2024 for construction, controlled by bag filters (TMBF49-TMBF52), exhausting through general exhaust stack 03-EF-301-302.

(F) One (1) taping machine, identified as TM-14, approved in 2024 for construction, controlled by bag filters (TMBF53-TMBF56), exhausting through general exhaust stack 03-EF-301-302.

(G) One (1) taping machine, identified as TM-15, approved in 2024 for construction, controlled by bag filters (TMBF57-TMBF60), exhausting through general exhaust stack 03-EF-301-302.

(H) One (1) taping machine, identified as TM-16, approved in 2024 for construction, controlled by bag filters (TMBF61-TMBF64), exhausting through general exhaust stack 03-EF-301-302.

(2) Four (4) SealPin Welding lines, consisting of the following

Line 5

(A) Two (2) seal pin welding, identified as SPW5-1 to SPW5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (SPWBF5), exhausting through general exhaust stack 03-EF-301-302.

Line 6

(B) Two (2) seal pin welding, identified as SPW6-1 to SPW6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF6) respectively, exhausting through general exhaust stack 03-EF-301-302.

Line 7

(C) Two (2) seal pin welding, identified as SPW7-1 to SPW7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF7) respectively, exhausting through general exhaust stack 03-EF-301-302.

Line 8

(D) Two (2) seal pin welding, identified as SPW8-1 to SPW8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF8) respectively, exhausting to through general exhaust stack 03-EF-301-302.

(3) Four (4) HVC Front Side Moving Device, identified as HVC5-HVC8, approved in 2024 for construction, with a combined maximum capacity of 3,588 cells/hr, and Activated Carbon Towers (CAT-11a, CAT-11b, CAT-11c, CAT-11d, & CAT-11e

Standby) for VOC/HAP control, exhausting to stack (S-11a, S-11b, S-11c, S-11d, and S-11e Standby.

(p) One (1) module process, identified as Module, approved in 2024 for construction, and consisting of the following:

Line 5

(1) One (1) frame side welding, identified as FSW5, approved in 2024 for construction, with a maximum capacity of 897cells/hr, total, and controlled by a bag filter (MBF13), exhausting through general exhaust stack 03-EF-301-302.

(2) One (1) busbar welding, identified as BW5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MB14), exhausting through general exhaust stack 03-EF-301-302.

(3) One (1) side dispenser, identified as SD5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA9-PSA10, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(6) Two (2) curing stations, identified as CS9-CS10, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(7) One (1) Frame end welding, identified as FEW5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF21), exhausting through general exhaust stack 03-EF-301-302.

Line 6

(8) One (1) frame side welding, identified as FSW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF15), exhausting through general exhaust stack 03-EF-301-302.

(9) One (1) busbar welding, identified as BW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF16), exhausting through general exhaust stack 03-EF-301-302.

(10) One (1) side dispenser, identified as SD6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(11) One (1) HBB dispenser, identified as HBB6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(12) Two (2) PSA dispensers, identified as PSA11-PSA12, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(13) Two (2) curing stations, identified as CS11-CS12, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(14) One (1) Frame end welding, identified as FEW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF22), exhausting through general exhaust stack 03-EF-301-302.

Line 7

(15) One (1) frame side welding, identified as FSW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF17), exhausting through general exhaust stack 03-EF-301-302.

(16) One (1) busbar welding, identified as BW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF18), exhausting through general exhaust stack 03-EF-301-302.

(17) One (1) side dispenser, identified as SD7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(18) One (1) HBB dispenser, identified as HBB7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(19) Two (2) PSA dispensers, identified as PSA13-PSA14, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(20) Two (2) curing stations, identified as CS13-CS14, approved in 20243 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(21) One (1) Frame end welding, identified as FEW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF23), exhausting through general exhaust stack 03-EF-301-302.

Line 8

(22) One (1) frame side welding, identified as FSW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF19), exhausting through general exhaust stack 03-EF-301-302.

(23) One (1) busbar welding, identified as BW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF20), exhausting through general exhaust stack 03-EF-301-302.

(24) One (1) side dispenser, identified as SD8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(25) One (1) HBB dispenser, identified as HBB8, approved in 2023 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(26) Two (2) PSA dispensers, identified as PSA15-PSA16, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(27) Two (2) curing stations, identified as CS13-CS14, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(28) One (1) Frame end welding, identified as FEW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF24), exhausting through general exhaust stack 03-EF-301-302.

(q) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

A.4 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

Plant 1:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating1 to W-Heating3, approved in 2023 for construction and approved for modification in 2024, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating01 through S-Heating-60, approved in 2023 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump1, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Twenty-six (26) cooling towers, identified as CWT01-CWT26, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 4,615 gal/min each, using no control, and exhausting to the atmosphere.

(f) Maintenance welding, gas metal arc welding (GMAW), 5,000 lbs of carbon steel electrode per year, uncontrolled, and exhausting to the indoors.

(g) Maintenance painting, using aerosol cans, with a maximum usage of five (5) 12oz cans per week uncontrolled, and exhausting to the indoors.

(h) Paved roads and parking lots with public access.

Plant 2:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating4 to W-Heating6, 2024 for construction, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating61 through S-Heating-120, approved in 2024 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Four (4) cooling towers, identified as CWT27-CWT30, approved in 2024 for construction, with a maximum capacity of 5,500 gal/min each, using no control, and exhausting to the atmosphere.

A.5 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-7-4(c)][326 IAC 2-7-5(14)]

This stationary source also includes the following insignificant activities, as defined in 326 IAC 2-7-1(21):

Plant 1:

(a) One (1) electrolyte storage tank, identified as EST-1, approved in 2023 for construction, with a nominal capacity of 528 gallons and annual throughput of 1,569 gal/hr, using Activated Carbon Tower (CAT-06) as control, and exhausting to stack (S-6).

(b) One (1) used battery storage room, identified as USB1, approved in 2023 for construction, used for discharging used lithium-ion batteries, with a nominal capacity of 4.17 cells/hr, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5).

(c) One (1) used/recovered nmp storage tank, identified as NMPRT06, approved in 2023 for construction, with a nominal capacity of 528 gallons, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5).

(d) One (1) innovation process for research and development, identified as R&D, uncontrolled, and exhausting indoors.

(e) One (1) wastewater treatment plant.

(f) One (1) diesel storage tank, identified as DST-1, approved in 2023 for construction, with a maximum capacity of 500 gallons, using no control, and exhausting to the atmosphere.

(g) One (1) Packing process, identified as Packing1, approved in 2024 for construction, exhausting indoors.

Plant 2:

(a) One(1) electrolyte storage tank, identified as EST-2, approved in 2024 for construction, with a maximum capacity of 528 gallons and annual throughput of 1,569 gal/hr, using Activated Carbon Tower (CAT-06) as control, and exhausting to stack (S-6).

(b) One (1) used battery storage room, identified as USB-2, approved in 2024 for construction, used for discharging used lithium-ion batteries, with a maximum capacity of 4.87 cells/hr, using Activated Carbon Tower (CAT-05) as control, and exhausting to stack (S-5)

(c) One (1) innovation process for research and development, identified as R&D2, uncontrolled, and exhausting indoors.

(d) One (1) diesel storage tank, identified as DST-2, approved in 2024 for construction, with a maximum capacity of 500 gallons, using no control, and exhausting to the atmosphere.

(e) One (1) Packing process, identified as Packing2, approved in 2024 for construction, exhausting indoors.

A.6 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

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~~**SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS**~~

~~**Emissions Unit Description:**~~

~~(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction, and consisting of the following:~~

~~Unit Name~~	~~Unit ID~~	~~Capacity (gal)**~~	~~Nominal Throughput (gal/hr)~~	~~Nominal Throughput (gal/yr)~~	~~Year~~	~~Control~~	~~Stack~~
~~Four (4) Cathode Inlet Tanks~~	~~Cathode Inlet 1-4~~	~~1,057~~	~~570~~	~~4,272,318~~	~~2023*~~	~~Bag filter CBF15~~	~~CS-15~~
~~Four (4) HD Mixer Tanks~~	~~HD 1-4~~	~~634~~			~~2023*~~	~~Bag filter CBF2~~	~~CS-2~~
						~~CAT-01a, CAT-01b and CAT-01c Standby~~	~~S-1a, S-1b, and S-1c Standby~~
~~Two (2) Binder Silos~~	~~Binder Silo 1-2~~	~~792~~			~~2023*~~	~~Bag filter CBF8~~	~~CS-8~~
~~One (1) Binder Booth~~	~~Binder booth 1~~	~~528~~			~~2023*~~	~~Bag filter CBF16~~	~~CS-16~~
~~Four (4) Cathode Silos~~	~~Cathode silo 1-4~~	~~1,057~~			~~2023*~~	~~Bag filter CBF7~~	~~CS-7~~
~~Four (4) Cathode Mixer Hoppers~~	~~CMH 1-4~~	~~528~~			~~2023*~~	~~Bag filter CBF7~~	~~CS-7~~
~~Two (2) Binder Mixers tanks~~	~~Binder Mixer 1-2~~	~~528~~			~~2023*~~	~~Bag filter CBF1~~	~~CS-1~~
~~Four (4) Binder Storage Tanks~~	~~BST 1-4~~	~~528~~			~~2023*~~	~~CAT-01a, CAT-01b and CAT-01c Standby~~	~~S-1a, S-1b, and S-1c Standby~~
~~Seven (7) LCNT Tanks~~	~~LCNT1-7~~	~~634~~			~~2023*~~		
~~One (1) NMP Supply Tank~~	~~NMPST1~~	~~5,283~~			~~2023*~~		
~~Four (4) Emf Buffer Tank~~	~~EMFBT 1-4~~	~~528~~			~~2023*~~		
~~Four (4) Emf Tanks~~	~~EMFT 1-4~~	~~528~~			~~2023*~~		
~~Seven (7) (HD Slurry) Storage Tanks~~	~~HDSST 1-7~~	~~528~~			~~2023*~~		
~~One (1) Coater Buffer Tank~~	~~CBT 1~~	~~528~~			~~2023*~~		

~~* Year approved for construction~~
~~** Each individual tank/booth/silo/hopper has the listed capacity~~

~~Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.~~

~~(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction, and consisting of the following~~

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Three (3) Cathode Inlet Tanks	Cathode Inlet 5-7	1057	570	4,272,318	2023*	Bag filter CBF17	CS-17
Three (3) HD Mixer Tanks	HD 5-7	634			2023*	Bag filter CBF3	CS-3
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 3-4	792			2023*	Bag filter CBF10	CS-10
One (1) Binder Booth	Binder Booth 2	528			2023*	Bag filter CBF18	CS-18
Three (3) Cathode Silos	Cathode Silo 5-7	1057			2023*	Bag filter CBF9	CS-9
Three (3) Cathode Mixer Hoppers	CMH 5-7	528			2023*	Bag filter CBF9	CS-9
Two (2) Binder Mixers	Binder Mixer 3-4	528			2023*	Bag filter CBF1	CS-1
Four (4) Binder Storage Tanks	BST 5-8	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Seven (7) LCNT Tanks	LCNT 8-14	634			2023*		
One (1) NMP Supply Tank	NMPST 2	5283			2023*		
Four (4) Emf Buffer Tank	EMFBT 5-7	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	
Four (4) Emf Tanks	EMFT 5-7	528			2023*		
Seven (7) (HD Slurry) Storage Tanks	HDSST 8-14	528			2023*		
One (1) Coater Buffer Tank	CBT 2	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Four (4) Cathode Inlet Tanks	Cathode Inlet 8-11	1057	570	4,272,318	2023*	Bag filter CBF19	CS-19
Four (4) HD Mixer Tanks	HD 8-11	634			2023*	Bag filter CBF5	CS-5

						~~CAT-01a, CAT-01b and CAT-01c Standby~~	~~S-1a, S-1b, and S-1c Standby~~
~~Two (2) Binder Silos~~	~~Binder Silo 5-6~~	~~792~~			~~2023*~~	~~Bag filter CBF12~~	~~CS-12~~
~~One (1) Binder Booth~~	~~Binder booth 3~~	~~528~~			~~2023*~~	~~Bag filter CBF20~~	~~CS-20~~
~~Four (4) Cathode Silos~~	~~Cathode silo 8-11~~	~~1057~~			~~2023*~~	~~Bag filter CBF11~~	~~CS-11~~
~~Four (4) Cathode Mixer Hoppers~~	~~CMH 8-11~~	~~528~~			~~2023*~~	~~Bag filter CBF11~~	~~CS-11~~
~~Two (2) Binder Mixes~~	~~Binder Mixer 5-6~~	~~528~~			~~2023*~~	~~Bag filter CBF4~~	~~CS-4~~
~~Four (4) Binder Storage Tanks~~	~~BST 9-12~~	~~528~~			~~2023*~~	~~CAT-01a, CAT-01b and CAT-01c Standby~~	~~S-1a, S-1b, and S-1c Standby~~
~~Seven (7) LCNT Tanks~~	~~LCNT 15-21~~	~~634~~			~~2023*~~		
~~One (1) NMP Supply Tank~~	~~NMPST 3~~	~~5283~~			~~2023*~~		
~~Four (4) Emf Buffer Tank~~	~~EMFBT 8-11~~	~~528~~			~~2023*~~		
~~Four (4) Emf Tanks~~	~~EMFT 8-11~~	~~528~~			~~2023*~~		
~~Seven (7) (HD Slurry) Storage Tanks~~	~~HDSST 15-21~~	~~528~~			~~2023*~~		
~~One (1) Coater Buffer Tank~~	~~CBT 3~~	~~528~~			~~2023*~~		

~~* Year approved for construction~~
~~** Each individual tank/booth/silo/hopper has the listed capacity~~

~~Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.~~

~~(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction, and consisting of the following:~~

~~Unit Name~~	~~Unit ID~~	~~Capacity (gal)**~~	~~Nominal Throughput (gal/hr)~~	~~Nominal Throughput (gal/yr)~~	~~Year~~	~~Control~~	~~Stack~~
~~Three (3) Cathode Inlet Tanks~~	~~Cathode Inlet 12-14~~	~~1057~~	~~570~~	~~4,272,318~~	~~2023*~~	~~Bag filter CBF21~~	~~CS-21~~
~~Three (3) HD Mixer Tanks~~	~~HD 12-14~~	~~634~~			~~2023*~~	~~Bag filter CBF6~~	~~CS-6~~
						~~CAT-01a, CAT-01b and CAT-01c Standby~~	~~S-1a, S-1b, and S-1c Standby~~
~~Two (2) Binder Silos~~	~~Binder Silo 7-8~~	~~792~~			~~2023*~~	~~Bag filter CBF14~~	~~CS-14~~
~~One (1) Binder Booth~~	~~Binder Booth 4~~	~~528~~			~~2023*~~	~~Bag filter CBF22~~	~~CS-22~~
~~Three (3) Cathode Silos~~	~~Cathode Silo 12-14~~	~~1057~~			~~2023*~~	~~Bag filter CBF13~~	~~CS-13~~

Three (3) Cathode Mixer Hoppers	CMH 12-14	528			2023*	Bag filter CBF13	CS-13
Two (2) Binder Mixes	Binder Mixer 7-8	528			2023*	Bag filter CBF4	CS-4
Four (4) Binder Storage Tanks	BST 13-16	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Seven (7) LCNT Tanks	LCNT 22-28	634			2023*		
One (1) NMP Supply Tank	NMPST 4	5283			2023*		
Four (4) Emf Buffer Tank	EMFBT 12-14	528			2023*		
Four (4) Emf Tanks	EMFT 12-14	528			2023*		
Seven (7) (HD Slurry) Storage Tanks	HDSST 22-28	528			2023*		
One (1) Coater Buffer Tank	CBT 4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:

Unit Description	Control Device ID	PM Emission Limit (lbs/hr)	PM10 Emission Limit (lbs/hr)	PM2.5 Emission Limit (lbs/hr)
One (1) Binder Booth (Binder Booths 1)	CBF16	0.017	0.017	0.017
One (1) Binder Booth (Binder Booths 2)	CBF18	0.017	0.017	0.017
One (1) Binder Booth (Binder Booths 3)	CBF20	0.017	0.017	0.017
One (1) Binder Booth (Binder Booths 4)	CBF22	0.017	0.017	0.017
Two (2) Binder Silos (Binder Silos #1-2)	CBF8	0.017	0.017	0.017
Two (2) Binder Silos (Binder Silos #3-4)	CBF10	0.017	0.017	0.017
Two (2) Binder Silos (Binder Silos #5-6)	CBF12	0.017	0.017	0.017
Two (2) Binder Silos (Binder Silos #7-8)	CBF14	0.017	0.017	0.017
Four (4) Binder Mixer (Binder Mixer 1-4)	CBF1	0.033	0.033	0.033
Four (4) Binder Mixer (Binder Mixer 5-8)	CBF4	0.033	0.033	0.033
Four (4) Cathode Inlets (Cathode Inlet 1-4)	CBF15	0.74	0.74	0.74

Unit Description	Control Device ID	PM Emission Limit (lbs/hr)	PM10 Emission Limit (lbs/hr)	PM2.5 Emission Limit (lbs/hr)
Three (3) Cathode Inlets (Cathode Inlet 5-7)	CBF17	0.555	0.555	0.555
Four (4) Cathode Inlets (Cathode Inlet 8-11)	CBF19	0.74	0.74	0.74
Three (3) Cathode Inlets (Cathode Inlet 12-14)	CBF21	0.555	0.555	0.555
Four (4) Cathode Silos (Cathode Silo 1-4)	CBF7	1.48	1.48	1.48
Four (4) Cathode Mixer Hoppers (CMH 1-4)				
Three (3) Cathode Silos (Cathode Silo 5-7)	CBF9	1.11	1.11	1.11
Three (3) Cathode Mixer Hoppers (CMH 5-7)				
Four (4) Cathode Silos (Cathode silo 8-11)	CBF11	1.48	1.48	1.48
Four (4) Cathode Mixer Hoppers (CMH 8-11)				
Three (3) Cathode Silos (Cathode Silo 12-14)	CBF13	1.11	1.11	1.11
Three (3) Cathode Mixer Hoppers (CMH 12-14)				
Four (4) HD Tanks (HD 1-4)	CBF2	0.759	0.759	0.759
Three (3) HD Tanks (HD 5-7)	CBF3	0.569	0.569	0.569
Four (4) HD Tanks (HD 8-11)	CBF5	0.759	0.759	0.759
Three (3) HD Tanks (HD 12-14)	CBF6	0.569	0.569	0.569

Compliance with these limits, combined with the potential to emit PM, PM_{10}, and $PM_{2.5}$ from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM_{10}, and $PM_{2.5}$ to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.1.2 Hazardous Air Pollutant (HAP) Minor Limits [40 CFR 63]

In order to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA), the Permittee shall comply with the following:

(a) The Nickel and Cobalt emissions from the units named in the table below shall not exceed the values shown in the table:

Unit Description	Control Device ID	Nickel Emission Limit (lbs/hr)	Cobalt Emission Limit (lbs/hr)
Four (4) Cathode Inlets (Cathode Inlet 1-4)	CBF15	0.206	0.108
Three (3) Cathode Inlets (Cathode Inlet 5-7)	CBF17	0.155	0.081
Four (4) Cathode Inlets (Cathode Inlet 8-11)	CBF19	0.206	0.108
Three (3) Cathode Inlets (Cathode Inlet 12-14)	CBF21	0.155	0.081
Four (4) Cathode Silos (Cathode Silo 1-4)	CBF7	0.411	0.216
Four (4) Cathode Mixer Hoppers (CMH 1-4)			
Three (3) Cathode Silos (Cathode Silo 5-7)	CBF9	0.309	0.162
Three (3) Cathode Mixer Hoppers (CMH 5-7)			
Four (4) Cathode Silos (Cathode silo 8-11)	CBF11	0.411	0.216
Four (4) Cathode Mixer Hoppers (CMH 8-11)			

Unit Description	Control Device ID	Nickel Emission Limit (lbs/hr)	Cobalt Emission Limit (lbs/hr)
Three (3) Cathode Silos (Cathode Silo 12-14)	CBF13	0.309	0.162
Three (3) Cathode Mixer Hoppers (CMH 12-14)			

Compliance with these limits, combined with the potential to emit HAP from all other emission units at the source, shall limit the source-wide potential to emit single HAP to less than 10 tons per twelve (12) consecutive month period and the source-wide potential to emit total HAPs to less than 25 tons per twelve (12) consecutive month period, and shall render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

D.1.3 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Cathode Inlet Tanks	Cathode Inlet 1 - Cathode Inlet 14	0.03 grain/dscf *
HD Tanks	HD 1- HD 14	0.03 grain/dscf *
Binder Silos	Binder Silo1- Binder Silo8	0.03 grain/dscf *
Binder Booth	Binder booth 1- Binder booth 4	0.03 grain/dscf *
Cathode Silos	Cathode silo 1- Cathode silo 14	0.03 grain/dscf *
Cathode Mixer Hoppers	CMH 1- CMH 14	0.03 grain/dscf *
Binder Mixes	Binder Mixer 1- Binder Mixer 8	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

D.1.4 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.1.5 Particulate and HAP Control

(a) In order to assure compliance with Conditions D.1.1, D.1.2, and D.1.3, the bag filters for particulate and HAP control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit/Process Name	Unit ID	Bag Filter ID
Cathode Inlet Tanks	Cathode Inlet 1 - Cathode Inlet 4	CBF15
	Cathode Inlet 5 - Cathode Inlet 7	CBF17
	Cathode Inlet 8 - Cathode Inlet 11	CBF19
	Cathode Inlet 12 - Cathode Inlet 14	CBF21
HD Tanks	HD 1 - HD 4	CBF2
	HD 5 - HD 7	CBF3
	HD 8 - HD 11	CBF5
	HD 12 - HD 14	CBF6
Binder Silos	Binder Silo1 - Binder Silo2	CBF8
	Binder Silo3 - Binder Silo4	CBF10
	Binder Silo5 - Binder Silo6	CBF12

Unit/Process Name	Unit ID	Bag Filter ID
	Binder Silo7 - Binder Silo8	CBF14
Binder Booth	Binder booth 1	CBF16
	Binder booth 2	CBF18
	Binder booth 3	CBF20
	Binder booth 4	CBF22
Cathode Silos	Cathode silo 1 - Cathode silo 4	CBF7
	Cathode silo 5 - Cathode silo 7	CBF9
	Cathode silo 8 - Cathode silo 11	CBF11
	Cathode silo 12 - Cathode silo 14	CBF13
Cathode Mixer Hoppers	CMH 1 - CMH 4	CBF7
	CMH 5 - CMH 7	CBF9
	CMH 8 - CMH 11	CBF11
	CMH 12 - CMH 14	CBF13
Binder Mixes	Binder Mixer 1 - Binder Mixer 2	CBF1
	Binder Mixer 3 - Binder Mixer 4	
	Binder Mixer 5 - Binder Mixer 6	CBF4
	Binder Mixer 7 - Binder Mixer 8	

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.1.6 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.1.1, D.1.2, and D.1.3, not later than 180 days after startup of the emission units and associated controls listed below, the Permittee shall perform PM, PM_{10}, $PM_{2.5}$, Nickel, and Cobalt testing of controls listed below utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration.

Unit/Process Name	Unit ID	Bag Filter ID
Cathode Inlet Tanks	Cathode Inlet 1 - Cathode Inlet 4	CBF15
	Cathode Inlet 5 - Cathode Inlet 7	CBF17
	Cathode Inlet 8 - Cathode Inlet 11	CBF19
	Cathode Inlet 12 - Cathode Inlet 14	CBF21
HD Tanks	HD 1 - HD 4	CBF2
	HD 5 - HD 7	CBF3
	HD 8 - HD 11	CBF5
	HD 12 - HD 14	CBF6
Binder Silos	Binder Silo1 - Binder Silo2	CBF8
	Binder Silo3 - Binder Silo4	CBF10
	Binder Silo5 - Binder Silo6	CBF12
	Binder Silo7 - Binder Silo8	CBF14
Binder Booth	Binder booth 1	CBF16
	Binder booth 2	CBF18
	Binder booth 3	CBF20
	Binder booth 4	CBF22
Cathode Silos	Cathode silo 1 - Cathode silo 4	CBF7
	Cathode silo 5 - Cathode silo 7	CBF9
	Cathode silo 8 - Cathode silo 11	CBF11
	Cathode silo 12 - Cathode silo 14	CBF13
Cathode Mixer	CMH 1 - CMH 4	CBF7

Unit/Process Name	Unit ID	Bag Filter ID
Hoppers	CMH 5 - CMH 7	CBF9
	CMH 8 - CMH 11	CBF11
	CMH 12 - CMH 14	CBF13
Binder Mixes	Binder Mixer 1 - Binder Mixer 2	CBF1
	Binder Mixer 3 - Binder Mixer 4	
	Binder Mixer 5 - Binder Mixer 6	CBF4
	Binder Mixer 7 - Binder Mixer 8	

(b) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.1.7 Parametric Monitoring - Bag Filters

The Permittee shall record the pressure drop across the bag filters listed in the table below at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a bag filter is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

Bag Filter ID	
CBF1	CBF12
CBF2	CBF13
CBF3	CBF14
CBF4	CBF15
CBF5	CBF16
CBF6	CBF17
CBF7	CBF18
CBF8	CBF19
CBF9	CBF20
CBF10	CBF21
CBF11	CBF22

The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.1.8 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or

~~replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).~~

~~Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.~~

~~**Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]**~~

~~D.1.9 Record Keeping Requirement~~

~~(a) To document the compliance status with Condition D.1.7, the Permittee shall maintain daily records of the pressure drop for each bag filter. The Permittee shall include in its daily record when a pressure drop is not taken and the reason for the lack of a pressure drop record (e.g., the process did not operate that day).~~

~~(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.~~

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 1-4	1,057	105	918,079	2023*	Bag filter CBF15	01-PEF-03-05
Four (4) HD Mixer Tanks	HD 1-4	634			2023*	Bag filter CBF2	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 1-2	792			2023*	Bag filter CBF8	01-PEF-03-05
One (1) Binder Booth	Binder booth 1	528			2023*	Bag filter CBF16	01-PEF-03-05
Four (4) Cathode Silos	Cathode silo 1-4	1,057			2023*	Bag filter CBF7	01-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 1-4	528			2023*	Bag filter CBF7	01-PEF-03-05
Two (2) Binder Mixers tanks	Binder Mixer 1-2	528			2023*	Bag filter CBF1	01-PEF-03-05
						CAT-01a, CAT-01b and	S-1a, S-1b, and S-1c Standby
Four (4) Binder Storage Tanks	BST 1-4	528			2023*		

Four (4) Emf Buffer Tank	EMFBT 1-4	528			2023*	CAT-01c Standby	
Seven (7) Storage Tanks	ST 1-7	528			2023*		
One (1) Coater Buffer Tank	CBT 1	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 5-7	1057	105	918,079	2023*	Bag filter CBF17	01-PEF-03-05
Three (3) HD Mixer Tanks	HD 5-7	634			2023*	Bag filter CBF3	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 3-4	792			2023*	Bag filter CBF10	01-PEF-03-05
One (1) Binder Booth	Binder Booth 2	528			2023*	Bag filter CBF18	01-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 5-7	1057			2023*	Bag filter CBF9	01-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 5-7	528			2023*	Bag filter CBF9	01-PEF-03-05
Two (2) Binder Mixers	Binder Mixer 3-4	528			2023*	Bag filter CBF1	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 5-8	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Three (3) Emf Buffer Tank	EMFBT 5-7	528			2023*		
Seven (7) Storage Tanks	ST 8-14	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	
One (1) Coater Buffer Tank	CBT 2	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 8-11	1057	105	918,079	2023*	Bag filter CBF19	01-PEF-03-05
Four (4) HD Mixer Tanks	HD 8-11	634			2023*	Bag filter CBF5	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 5-6	792			2023*	Bag filter CBF12	01-PEF-03-05
One (1) Binder Booth	Binder booth 3	528			2023*	Bag filter CBF20	01-PEF-03-05
Four (4) Cathode Silos	Cathode silo 8-11	1057			2023*	Bag filter CBF11	01-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 8-11	528			2023*	Bag filter CBF11	01-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 5-6	528			2023*	Bag filter CBF4	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 9-12	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Emf Buffer Tank	EMFBT 8-11	528			2023*		
Seven (7) Storage Tanks	ST 15-21	528			2023*		
One (1) Coater Buffer Tank	CBT 3	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 12-14	1057	105	918,079	2023*	Bag filter CBF21	01-PEF-03-05
Three (3) HD Mixer Tanks	HD 12-14	634			2023*	Bag filter CBF6	01-PEF-03-05
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby

Two (2) Binder Silos	Binder Silo 7-8	792			2023*	Bag filter CBF14	01-PEF-03-05
One (1) Binder Booth	Binder Booth 4	528			2023*	Bag filter CBF22	01-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 12-14	1057			2023*	Bag filter CBF13	01-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 12-14	528			2023*	Bag filter CBF13	01-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 7-8	528			2023*	Bag filter CBF4	01-PEF-03-05
Four (4) Binder Storage Tanks	BST 13-16	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Three (3) Emf Buffer Tank	EMFBT 12-14	528			2023*		
Seven (7) Storage Tanks	ST 22-28	528			2023*		
One (1) Coater Buffer Tank	CBT 4	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-03-05 refers to a group of stacks consisting of 01-PEF-03, 01-PEF-04 and 01-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as NMPST 1 and NMPST 2; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 3 and NMPST 4.

Under 40 CFR 63, Subpart CCCCCCC, the NMP Storage Tanks associated with the cathode raw material handling and mixing line is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	PM Limit (lbs/hour)	PM10 Limit (lbs/hour)	PM2.5 Limit (lbs/hour)
Cline1 to Cline4	01-PEF-03, 01-PEF-04 and 01-PEF-05	5.46	5.46	5.46

***** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.**

Compliance with these limits, combined with the potential to emit PM, PM_{10}, and $PM_{2.5}$ from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM_{10}, and $PM_{2.5}$ to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.1.2 Hazardous Air Pollutant (HAP) Minor Limits [40 CFR 63]

In order to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA), the Permittee shall comply with the following:

(a) The Nickel and Cobalt emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	Nickel Limit* (lbs/hour)	Cobalt Limit** (lbs/hour)
Cline1 to Cline4	01-PEF-03, 01-PEF-04 and 01-PEF-05	1.13	0.59

*** Nickel refers to Nickel and Nickel compounds**
**** Cobalt refers to Cobalt and Cobalt compounds**
***** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.**

Compliance with these limits, combined with the potential to emit HAP from all other emission units at the source, shall limit the source-wide potential to emit single HAP to less than 10 tons per twelve (12) consecutive month period and the source-wide potential to emit total HAPs to less than 25 tons per twelve (12) consecutive month period, and shall render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

D.1.3 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Cathode Inlet Tanks	Cathode Inlet 1 - Cathode Inlet 14	0.03 grain/dscf *
HD Tanks	HD 1- HD 14	0.03 grain/dscf *
Binder Silos	Binder Silo1- Binder Silo8	0.03 grain/dscf *
Binder Booth	Binder booth 1- Binder booth 4	0.03 grain/dscf *
Cathode Silos	Cathode silo 1- Cathode silo 14	0.03 grain/dscf *
Cathode Mixer Hoppers	CMH 1- CMH 14	0.03 grain/dscf *
Binder Mixes	Binder Mixer 1- Binder Mixer 8	0.03 grain/dscf *

*** PM emissions shall not exceed the above limit for each individual unit**

D.1.4 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.1.5 Particulate and HAP Control

(a) In order to assure compliance with Conditions D.1.1, D.1.2, and D.1.3, the bag filters for particulate and HAP control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit/Process Name	Unit ID	Bag Filter ID
Cathode Inlet Tanks	Cathode Inlet 1 - Cathode Inlet 4	CBF15
	Cathode Inlet 5 - Cathode Inlet 7	CBF17
	Cathode Inlet 8 - Cathode Inlet 11	CBF19
	Cathode Inlet 12 - Cathode Inlet 14	CBF21
HD Tanks	HD 1 - HD 4	CBF2
	HD 5 - HD 7	CBF3
	HD 8 - HD 11	CBF5
	HD 12 - HD 14	CBF6
Binder Silos	Binder Silo1 - Binder Silo2	CBF8
	Binder Silo3 - Binder Silo4	CBF10
	Binder Silo5 - Binder Silo6	CBF12
	Binder Silo7 - Binder Silo8	CBF14
Binder Booth	Binder booth 1	CBF16
	Binder booth 2	CBF18
	Binder booth 3	CBF20
	Binder booth 4	CBF22
Cathode Silos	Cathode silo 1 - Cathode silo 4	CBF7
	Cathode silo 5 - Cathode silo 7	CBF9
	Cathode silo 8 - Cathode silo 11	CBF11
	Cathode silo 12 - Cathode silo 14	CBF13
Cathode Mixer Hoppers	CMH 1 - CMH 4	CBF7
	CMH 5 - CMH 7	CBF9
	CMH 8 - CMH 11	CBF11
	CMH 12 - CMH 14	CBF13
Binder Mixes	Binder Mixer 1 - Binder Mixer 2	CBF1
	Binder Mixer 3 - Binder Mixer 4	
	Binder Mixer 5 - Binder Mixer 6	CBF4
	Binder Mixer 7 - Binder Mixer 8	

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.1.6 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.1.1, D.1.2, and D.1.3, not later than 180 days after startup of the emission units and associated controls associated with CLine1-CLine4, the Permittee shall perform PM, PM_{10}, $PM_{2.5}$, Nickel, and Cobalt testing on the stack identified as " 01-PEF-03, 01-PEF-04 and 01-PEF-05" utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

(b) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.1.7 Parametric Monitoring - Bag Filters

The Permittee shall record the pressure drop across the bag filters listed in the table below at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a bag filter is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

Bag Filter ID				
CBF1	CBF6	CBF11	CBF16	CBF21
CBF2	CBF7	CBF12	CBF17	CBF22
CBF3	CBF8	CBF13	CBF18	
CBF4	CBF9	CBF14	CBF19	
CBF5	CBF10	CBF15	CBF20	

The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.1.8 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.1.9 Record Keeping Requirement

(a) To document the compliance status with Condition D.1.7, the Permittee shall maintain daily records of the pressure drop for each bag filter. The Permittee shall include in its daily record when a pressure drop is not taken and the reason for the lack of a pressure drop record (e.g., the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(e) One (1) Anode raw material handling and mixing line, identified as ALine1, approved in 2023 for construction, and consisting of the following

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	PM Control	Stack
Three (3) PD Mixers	PDM 1-3	608	1,350	10,113,158	2023*	Bag filter ABF2	AS-2
Three (3) PD Mixers	PDM 4-6	608			2023*	Bag filter ABF3	AS-3
Three (3) CMC Mixers	CMC Mixer 1-3	528			2023*	Bag filter ABF1	AS-1
One (1) Anode Conductive Powder Booth	ACPB 1	792			2023*	Bag filter ABF20	AS-20
One (1) CMC Booth	CMC Booth 1	792			2023*	Bag filter ABF20	AS-20
Two (2) Anode Conductive Powder Silos	ACPS 1-2	792			2023*	Bag filter ABF12	AS-12
One (1) CMC Silo	CMC Silo 1	792			2023*	Bag filter ABF 12	AS-12
Four (4) Anode Inlets	Anode Inlet 1-4	1057			2023*	Bag filter ABF19	AS-19
Four (4) Anode Silos	Anode Silo 1-4	1057			2023*	Bag filter ABF11	AS-11
Six (6) Anode Mixer Hoppers	AMH 1-6	528			2023*	Bag filter ABF11	AS-11
Six (6) CMC Storage Tanks	CMCST 1-6	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 1	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 1-12	528			2023*		
Two (2) Coater Buffer Tanks	CBT 1-2	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

(f) One (1) Anode raw material handling and mixing line, identified as ALine2, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	PM Control	Stack
Three (3) PD Mixers	PDM 7-9	608	1,350	10,113,158	2023*	Bag filter ABF4	AS-4
Three (3) PD Mixers	PDM 10-12	608			2023*	Bag filter ABF5	AS-5
Three (3) CMC Mixers	CMC Mixer 4-6	528			2023*	Bag filter ABF1	AS-1

One (1) Anode Conductive Powder Booth	ACPB 2	792			2023*	Bag filter ABF22	AS 22
One (1) CMC Booth	CMC Booth 2	792			2023*	Bag filter ABF22	AS 22
Two (2) Anode Conductive Powder Silos	ACPS 3-4	792			2023*	Bag filter ABF14	AS-14
One (1) CMC Silo	CMC Silo 2	792			2023*	Bag filter ABF 14	AS 14
Four (4) Anode Inlets	Anode Inlet 5-8	1057			2023*	Bag filter ABF21	AS-21
Four (4) Anode Silos	Anode Silo 5-8	1057			2023*	Bag filter ABF13	AS 13
Six (6) Anode Mixer Hoppers	AMH 7-12	528			2023*	Bag filter ABF13	AS-13
Six (6) CMC Storage Tanks	CMCST 7-12	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 2	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 13-24	528			2023*		
Two (2) Coater Buffer Tanks	CBT 3-4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

(g) One (1) Anode raw material handling and mixing line, identified as ALine 3, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	PM Control	Stack
Three (3) PD Mixers	PDM 13-15	608	1,350	10,113,158	2023*	Bag filter ABF7	AS-7
Three (3) PD Mixers	PDM 16-18	608			2023*	Bag filter ABF8	AS-8
Three (3) CMC Mixers	CMC Mixer 7-9	528			2023*	Bag filter ABF6	AS-6
One (1) Anode Conductive Powder Booth	ACPB 3	792			2023*	Bag filter ABF24	AS-24
One (1) CMC Booth	CMC Booth 3	792			2023*	Bag filter ABF24	AS-24
Two (2) Anode Conductive Powder Silos	ACPS 5-6	792			2023*	Bag filter ABF16	AS-16
One (1) CMC Silo	CMC Silo 3	792			2023*	Bag filter ABF16	AS-16
Four (4) Anode Inlets	Anode Inlet 9-12	1057			2023*	Bag filter ABF23	AS-23
Four (4) Anode Silos	Anode Silo 9-12	1057			2023*	Bag filter ABF15	AS-15
Six (6) Anode Mixer Hoppers	AMH 13-18	528			2023*	Bag filter ABF15	AS-15
Six (6) CMC Storage Tanks	CMCST 13-18	528			2023*	NA	Indoor

~~One (1) Electric Hot water Tank~~	~~HWT 3~~	~~792~~			~~2023*~~		
~~Twelve (12) (PD slurry) Storage Tanks~~	~~PDST 25-36~~	~~528~~			~~2023*~~		
~~Two (2) Coater Buffer Tanks~~	~~CBT 5-6~~	~~528~~			~~2023*~~		

~~* Year approved for construction~~
~~** Each individual tank/booth/silo/hopper has the listed capacity~~

~~(h) One (1) Anode raw material handling and mixing line, identified as ALine 4, approved in 2023 for construction, and consisting of the following:~~

~~Unit Name~~	~~Unit ID~~	~~Capacity (gal)**~~	~~Nominal Throughput (gal/hr)~~	~~Nominal Throughput (gal/yr)~~	~~Year~~	~~PM Control~~	~~Stack~~
~~Three (3) PD Mixers~~	~~PDM 19-21~~	~~608~~			~~2023*~~	~~Bag filter ABF9~~	~~AS-9~~
~~Three (3) PD Mixers~~	~~PDM 22-24~~	~~608~~			~~2023*~~	~~Bag filter ABF10~~	~~AS-10~~
~~Three (3) CMC Mixers~~	~~CMC Mixer 10-12~~	~~528~~			~~2023*~~	~~Bag filter ABF6~~	~~AS-6~~
~~One (1) Anode Conductive Powder Booth~~	~~ACPB 4~~	~~608~~			~~2023*~~	~~Bag filter ABF26~~	~~AS-26~~
~~One (1) CMC Booth~~	~~CMC Booth 4~~	~~608~~			~~2023*~~	~~Bag filter ABF26~~	~~AS-26~~
~~Two (2) Anode Conductive Powder Silos~~	~~ACPS 7-8~~	~~528~~			~~2023*~~	~~Bag filter ABF18~~	~~AS-18~~
~~One (1) CMC Silo~~	~~CMC Silo 4~~	~~608~~	~~1,350~~	~~10,113,158~~	~~2023*~~	~~Bag filter ABF 18~~	~~AS-18~~
~~Four (4) Anode Inlets~~	~~Anode Inlet 13-16~~	~~608~~			~~2023*~~	~~Bag filter ABF25~~	~~AS-25~~
~~Four (4) Anode Silos~~	~~Anode Silo 6-8~~	~~528~~			~~2023*~~	~~Bag filter ABF17~~	~~AS-17~~
~~Six (6) Anode Mixer Hoppers~~	~~AMH 19-24~~	~~608~~			~~2023*~~	~~Bag filter ABF17~~	~~AS-17~~
~~Six (6) CMC Storage Tanks~~	~~CMCST 19-24~~	~~528~~			~~2023*~~	~~NA~~	~~Indoor~~
~~One (1) Electric Hot water Tank~~	~~HWT 4~~	~~792~~			~~2023*~~		
~~Twelve (12) (PD slurry) Storage Tanks~~	~~PDST 37-48~~	~~528~~			~~2023*~~		
~~Two (2) Coater Buffer Tanks~~	~~CBT 7-8~~	~~528~~			~~2023*~~		

~~* Year approved for construction~~
~~** Each individual tank/booth/silo/hopper has the listed capacity~~

~~(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)~~

~~Emission Limitations and Standards [326 IAC 2-7-5(1)]~~

~~D.2.1 PSD Minor Limits [326 IAC 2-2]~~

~~In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:~~

~~(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:~~

~~Unit Description~~	~~Control Device ID~~	~~PM Emission Limit (lbs/hr)~~	~~PM10 Emission Limit (lbs/hr)~~	~~PM2.5 Emission Limit (lbs/hr)~~
~~CMC Booth 1~~ ~~Anode Conductive Powder Booth 1~~	~~ABF20~~	~~0.057~~	~~0.057~~	~~0.057~~
~~CMC Booth 2~~ ~~Anode Conductive Powder Booth 2~~	~~ABF22~~	~~0.057~~	~~0.057~~	~~0.057~~
~~CMC Booth 3~~ ~~Anode Conductive Powder Booth 3~~	~~ABF24~~	~~0.057~~	~~0.057~~	~~0.057~~
~~CMC Booth 4~~ ~~Anode Conductive Powder Booth 4~~	~~ABF26~~	~~0.057~~	~~0.057~~	~~0.057~~
~~CMC Silo #1~~ ~~Anode Conductive Powder Silo (#1-2)~~	~~ABF12~~	~~0.057~~	~~0.057~~	~~0.057~~
~~CMC Silo #2~~ ~~Anode Conductive Powder Silo (#3-4)~~	~~ABF14~~	~~0.057~~	~~0.057~~	~~0.057~~
~~CMC Silo #3~~ ~~Anode Conductive Powder Silo (#5-6)~~	~~ABF16~~	~~0.057~~	~~0.057~~	~~0.057~~
~~CMC Silo #4~~ ~~Anode Conductive Powder Silo (#7-8)~~	~~ABF18~~	~~0.057~~	~~0.057~~	~~0.057~~
~~CMC Mixer (#1-6)~~	~~ABF1~~	~~0.018~~	~~0.018~~	~~0.018~~
~~CMC Mixer (#7-12)~~	~~ABF6~~	~~0.018~~	~~0.018~~	~~0.018~~
~~Three (3) PD Mixers (PDM 1-3)~~	~~ABF2~~	~~0.564~~	~~0.564~~	~~0.564~~
~~Three (3) PD Mixers (PDM 4-6)~~	~~ABF3~~	~~0.564~~	~~0.564~~	~~0.564~~
~~Three (3) PD Mixers (PDM 7-9)~~	~~ABF4~~	~~0.564~~	~~0.564~~	~~0.564~~
~~Three (3) PD Mixers (PDM 10-12)~~	~~ABF5~~	~~0.564~~	~~0.564~~	~~0.564~~
~~Three (3) PD Mixers (PDM 13-15)~~	~~ABF7~~	~~0.564~~	~~0.564~~	~~0.564~~
~~Three (3) PD Mixers (PDM 16-18)~~	~~ABF8~~	~~0.564~~	~~0.564~~	~~0.564~~
~~Three (3) PD Mixers (PDM 19-21)~~	~~ABF9~~	~~0.564~~	~~0.564~~	~~0.564~~
~~Three (3) PD Mixers (PDM 22-24)~~	~~ABF10~~	~~0.564~~	~~0.564~~	~~0.564~~
~~Four (4) Anode Inlets (Anode Inlet 1-4)~~	~~ABF19~~	~~1.07~~	~~1.07~~	~~1.07~~
~~Four (4) Anode Inlets (Anode Inlet 5-8)~~	~~ABF21~~	~~1.07~~	~~1.07~~	~~1.07~~
~~Four (4) Anode Inlets (Anode Inlet 9-12)~~	~~ABF23~~	~~1.07~~	~~1.07~~	~~1.07~~
~~Four (4) Anode Inlets (Anode Inlet 13-16)~~	~~ABF25~~	~~1.07~~	~~1.07~~	~~1.07~~
~~Four (4) Anode Silos (Anode Silo 1-4)~~ ~~Six (6) Anode Mixer Hoppers (AMH 1-6)~~	~~ABF11~~	~~2.14~~	~~2.14~~	~~2.14~~
~~Four (4) Anode Silos (Anode Silo 5-8)~~ ~~Six (6) Anode Mixer Hoppers (AMH 7-12)~~	~~ABF13~~	~~2.14~~	~~2.14~~	~~2.14~~
~~Four (4) Anode Silos (Anode Silo 9-12)~~ ~~Six (6) Anode Mixer Hoppers (AMH 13-18)~~	~~ABF15~~	~~2.14~~	~~2.14~~	~~2.14~~
~~Four (4) Anode Silos (Anode Silo 13-16)~~ ~~Six (6) Anode Mixer Hoppers (AMH 19-24)~~	~~ABF17~~	~~2.14~~	~~2.14~~	~~2.14~~

~~Compliance with these limits, combined with the potential to emit PM, PM_{10}, and $PM_{2.5}$ from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM_{10}, and $PM_{2.5}$ to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.~~

~~D.2.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]~~

~~A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.~~

~~Compliance Determination Requirements [326 IAC 2-7-5(1)]~~

~~D.2.2 Particulate Emission Limitations [326 IAC 6.5-1-2]~~

~~Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:~~

~~Unit/Process Name~~	~~Unit ID~~	~~Limit~~
~~PD Mixers~~	~~PDM 1- PDM 24~~	~~0.03 grain/dscf *~~
~~CMC Mixers~~	~~CMC Mixer 1- CMC Mixer 12~~	~~0.03 grain/dscf *~~
~~Anode Conductive Powder Booth~~	~~ACPB 1- ACPB 4~~	~~0.03 grain/dscf *~~
~~CMC Booth~~	~~CMC Booth 1- CMC Booth 4~~	~~0.03 grain/dscf *~~
~~Anode Conductive Powder Silos~~	~~ACPS 1- ACPS 8~~	~~0.03 grain/dscf *~~
~~CMC Silo~~	~~CMC Silo 1- CMC Silo 4~~	~~0.03 grain/dscf *~~
~~Anode Inlets~~	~~Anode Inlet 1- Anode Inlet 16~~	~~0.03 grain/dscf *~~
~~Anode Silos~~	~~Anode Silo 1- Anode Silo 16~~	~~0.03 grain/dscf *~~
~~Anode Mixer Hoppers~~	~~AMH1-AMH24~~	~~0.03 grain/dscf *~~

~~* PM emissions shall not exceed the above limit for each individual unit~~

~~D.2.4 Particulate Control~~

~~(a) In order to assure compliance with Conditions D.2.1, and D.2.2, the bag filters for particulate control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:~~

~~Unit/Process Name~~	~~Unit ID~~	~~Bag Filter ID~~
~~PD Mixers~~	~~PDM 1 - PDM 3~~	~~ABF2~~
	~~PDM 4 - PDM 6~~	~~ABF3~~
	~~PDM 7 - PDM 9~~	~~ABF4~~
	~~PDM 10 - PDM 12~~	~~ABF5~~
	~~PDM 13 - PDM 15~~	~~ABF7~~
	~~PDM 16 - PDM 18~~	~~ABF8~~
	~~PDM 19 - PDM 21~~	~~ABF9~~
	~~PDM 22 - PDM 24~~	~~ABF10~~
~~CMC Mixers~~	~~CMC Mixer 1 - CMC Mixer 3~~	~~ABF1~~
	~~CMC Mixer 4 - CMC Mixer 6~~	
	~~CMC Mixer 7 - CMC Mixer 9~~	~~ABF6~~
	~~CMC Mixer 10 - CMC Mixer 12~~	
~~Anode Conductive Powder Booth~~	~~ACPB 1~~	~~ABF20~~
	~~ACPB 2~~	~~ABF22~~
	~~ACPB 3~~	~~ABF24~~
	~~ACPB 4~~	~~ABF26~~
~~CMC Booth~~	~~CMC Booth 1~~	~~ABF20~~

~~Unit/Process Name~~	~~Unit ID~~	~~Bag Filter ID~~
	~~CMC Booth 2~~	~~ABF22~~
	~~CMC Booth 3~~	~~ABF24~~
	~~CMC Booth 4~~	~~ABF26~~
~~Anode Conductive Powder Silos~~	~~ACPS 1-2~~	~~ABF12~~
	~~ACPS 3-4~~	~~ABF14~~
	~~ACPS 5-6~~	~~ABF16~~
	~~ACPS 7-8~~	~~ABF18~~
~~CMC Silo~~	~~CMC Silo 1~~	~~ABF12~~
	~~CMC Silo 2~~	~~ABF14~~
	~~CMC Silo 3~~	~~ABF16~~
	~~CMC Silo 4~~	~~ABF18~~
~~Anode Inlets~~	~~Anode Inlet 1-4~~	~~ABF19~~
	~~Anode Inlet 5-8~~	~~ABF21~~
	~~Anode Inlet 9-12~~	~~ABF23~~
	~~Anode Inlet 13-15~~	~~ABF25~~
~~Anode Silos~~	~~Anode Silo 1-4~~	~~ABF11~~
	~~Anode Silo 5-8~~	~~ABF13~~
	~~Anode Silo 9-12~~	~~ABF15~~
	~~Anode Silo 13-16~~	~~ABF17~~
~~Anode Mixer Hoppers~~	~~AMH 1-6~~	~~ABF11~~
	~~AMH 7-12~~	~~ABF13~~
	~~AMH 13-18~~	~~ABF15~~
	~~AMH 19-24~~	~~ABF17~~

~~(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.~~

~~D.2.5 Testing Requirements [326 IAC 2-1.1-11]~~

~~(a) In order to demonstrate compliance with Conditions D.2.1 and D.2.2, not later than 180 days after startup of the emission units and associated controls listed below, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$, testing of controls listed below utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration.~~

~~Unit/Process Name~~	~~Unit ID~~	~~Bag Filter ID~~
~~PD Mixers~~	~~PDM 1 - PDM 3~~	~~ABF2~~
	~~PDM 4 - PDM 6~~	~~ABF3~~
	~~PDM 7 - PDM 9~~	~~ABF4~~
	~~PDM 10 - PDM 12~~	~~ABF5~~
	~~PDM 13 - PDM 15~~	~~ABF7~~
	~~PDM 16 - PDM 18~~	~~ABF8~~
	~~PDM 19 - PDM 21~~	~~ABF9~~
	~~PDM 22 - PDM 24~~	~~ABF10~~
~~CMC Mixers~~	~~CMC Mixer 1 - CMC Mixer 3~~	~~ABF1~~
	~~CMC Mixer 4 - CMC Mixer 6~~	
	~~CMC Mixer 7 - CMC Mixer 9~~	~~ABF6~~
	~~CMC Mixer 10 - CMC Mixer 12~~	
~~Anode Conductive Powder Booth~~	~~ACPB 1~~	~~ABF20~~
	~~ACPB 2~~	~~ABF22~~

Unit/Process Name	Unit ID	Bag Filter ID
	ACPB 3	ABF24
	ACPB 4	ABF26
CMC Booth	CMC Booth 1	ABF20
	CMC Booth 2	ABF22
	CMC Booth 3	ABF24
	CMC Booth 4	ABF26
Anode Conductive Powder Silos	ACPS 1-2	ABF12
	ACPS 3-4	ABF14
	ACPS 5-6	ABF16
	ACPS 7-8	ABF18
CMC Silo	CMC Silo 1	ABF12
	CMC Silo 2	ABF14
	CMC Silo 3	ABF16
	CMC Silo 4	ABF18
Anode Inlets	Anode Inlet 1-4	ABF19
	Anode Inlet 5-8	ABF21
	Anode Inlet 9-12	ABF23
	Anode Inlet 13-15	ABF25
Anode Silos	Anode Silo 1-4	ABF11
	Anode Silo 5-8	ABF13
	Anode Silo 9-12	ABF15
	Anode Silo 13-16	ABF17
Anode Mixer Hoppers	AMH 1-6	ABF11
	AMH 7-12	ABF13
	AMH 13-18	ABF15
	AMH 19-24	ABF17

(b) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.2.6 Parametric Monitoring - Bag Filters

The Permittee shall record the pressure drop across the bag filters listed in the table below at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a bag filter is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

Bag Filter ID		
ABF1	ABF10	ABF19
ABF2	ABF11	ABF20
ABF3	ABF12	ABF21
ABF4	ABF13	ABF22
ABF5	ABF14	ABF23
ABF6	ABF15	ABF24

~~Bag Filter ID~~		
~~ABF7~~	~~ABF16~~	~~ABF25~~
~~ABF8~~	~~ABF17~~	~~ABF26~~
~~ABF9~~	~~ABF18~~	

~~The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.~~

~~D.2.7 Broken or Failed Bag Detection~~

~~(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).~~

~~(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).~~

~~Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.~~

~~**Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]**~~

~~D.2.8 Record Keeping Requirement~~

~~(a) To document the compliance status with Condition D.2.6, the Permittee shall maintain daily records of the pressure drop for each bag filter. The Permittee shall include in its daily record when a pressure drop is not taken and the reason for the lack of a pressure drop record (e.g., the process did not operate that day).~~

~~(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.~~

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

(f) One (1) Anode raw material handling and mixing line, identified as ALine1, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 1-3	608	125	1,091,590	2023*	Bag filter ABF2	01-PEF-01-02
Three (3) PD Mixers	PDM 4-6	608			2023*	Bag filter ABF3	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 1-3	528			2023*	Bag filter ABF1	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 1	792			2023*	Bag filter ABF20	01-PEF-01-02
One (1) CMC Booth	CMC Booth 1	792			2023*	Bag filter ABF20	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 1-2	792			2023*	Bag filter ABF12	01-PEF-01-02
One (1) CMC Silo	CMC Silo 1	792			2023*	Bag filter ABF 12	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 1-4	1057			2023*	Bag filter ABF19	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 1-4	1057			2023*	Bag filter ABF11	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 1-6	528			2023*	Bag filter ABF11	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 1-6	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 1	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 1-12	528			2023*		
Two (2) Coater Buffer Tanks	CBT 1-2	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02**

(g) One (1) Anode raw material handling and mixing line, identified as ALine2, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 7-9	608	125	1,091,590	2023*	Bag filter ABF4	01-PEF-01-02
Three (3) PD Mixers	PDM 10-12	608			2023*	Bag filter ABF5	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 4-6	528			2023*	Bag filter ABF1	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 2	792			2023*	Bag filter ABF22	01-PEF-01-02
One (1) CMC Booth	CMC Booth 2	792			2023*	Bag filter ABF22	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 3-4	792			2023*	Bag filter ABF14	01-PEF-01-02
One (1) CMC Silo	CMC Silo 2	792			2023*	Bag filter ABF 14	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 5-8	1057			2023*	Bag filter ABF21	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 5-8	1057			2023*	Bag filter ABF13	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 7-12	528			2023*	Bag filter ABF13	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 7-12	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 2	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 13-24	528			2023*		
Two (2) Coater Buffer Tanks	CBT 3-4	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02**

(h) One (1) Anode raw material handling and mixing line, identified as ALine 3, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 13-15	608	125	1,091,590	2023*	Bag filter ABF7	01-PEF-01-02
Three (3) PD Mixers	PDM 16-18	608			2023*	Bag filter ABF8	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 7-9	528			2023*	Bag filter ABF6	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 3	792			2023*	Bag filter ABF24	01-PEF-01-02
One (1) CMC Booth	CMC Booth 3	792			2023*	Bag filter ABF24	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 5-6	792			2023*	Bag filter ABF16	01-PEF-01-02
One (1) CMC Silo	CMC Silo 3	792			2023*	Bag filter ABF16	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 9-12	1057			2023*	Bag filter ABF23	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 9-12	1057			2023*	Bag filter ABF15	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 13-18	528			2023*	Bag filter ABF15	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 13-18	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 3	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 25-36	528			2023*		
Two (2) Coater Buffer Tanks	CBT 5-6	528			2023*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02**

(i) One (1) Anode raw material handling and mixing line, identified as ALine 4, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 19-21	608	125	1,091,590	2023*	Bag filter ABF9	01-PEF-01-02
Three (3) PD Mixers	PDM 22-24	608			2023*	Bag filter ABF10	01-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 10-12	528			2023*	Bag filter ABF6	01-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 4	608			2023*	Bag filter ABF26	01-PEF-01-02
One (1) CMC Booth	CMC Booth 4	608			2023*	Bag filter ABF26	01-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 7-8	528			2023*	Bag filter ABF18	01-PEF-01-02
One (1) CMC Silo	CMC Silo 4	608			2023*	Bag filter ABF 18	01-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 13-16	608			2023*	Bag filter ABF25	01-PEF-01-02
Four (4) Anode Silos	Anode Silo 13-16	528			2023*	Bag filter ABF17	01-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 19-24	528			2023*	Bag filter ABF17	01-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 19-24	528			2023*	NA	Indoor
One (1) Electric Hot water Tank	HWT 4	792			2023*		
Twelve (12) (PD slurry) Storage Tanks	PDST 37-48	528			2023*		
Two (2) Coater Buffer Tanks	CBT 7-8	528			2023*		

*** Year approved for construction**
**** Per individual unit**
***** 01-PEF-01-02 refers to a group of stacks consisting of 01-PEF-01 and 01-PEF-02**

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	PM Limit (lbs/hour)	PM10 Limit (lbs/hour)	PM2.5 Limit (lbs/hour)
Aline1 to Aline4	01-PEF-01 and 01-PEF-02	8.75	8.75	8.75

***** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed**

Compliance with these limits, combined with the potential to emit PM, PM_{10}, and $PM_{2.5}$ from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM_{10}, and $PM_{2.5}$ to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.2.2 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
PD Mixers	PDM 1- PDM 24	0.03 grain/dscf *
CMC Mixers	CMC Mixer 1- CMC Mixer 12	0.03 grain/dscf *
Anode Conductive Powder Booth	ACPB 1- ACPB 4	0.03 grain/dscf *
CMC Booth	CMC Booth 1- CMC Booth 4	0.03 grain/dscf *
Anode Conductive Powder Silos	ACPS 1- ACPS 8	0.03 grain/dscf *
CMC Silo	CMC Silo 1- CMC Silo 4	0.03 grain/dscf *
Anode Inlets	Anode Inlet 1- Anode Inlet 16	0.03 grain/dscf *
Anode Silos	Anode Silo 1- Anode Silo 16	0.03 grain/dscf *
Anode Mixer Hoppers	AMH1-AMH24	0.03 grain/dscf *

*** PM emissions shall not exceed the above limit for each individual unit**

D.2.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.2.4 Particulate Control

(a) In order to assure compliance with Conditions D.2.1, and D.2.2, the bag filters for particulate control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit/Process Name	Unit ID	Bag Filter ID
PD Mixers	PDM 1 - PDM 3	ABF2
	PDM 4 - PDM 6	ABF3
	PDM 7 - PDM 9	ABF4
	PDM 10 - PDM 12	ABF5
	PDM 13 - PDM 15	ABF7
	PDM 16 - PDM 18	ABF8
	PDM 19 - PDM 21	ABF9
	PDM 22 - PDM 24	ABF10
CMC Mixers	CMC Mixer 1 - CMC Mixer 3	ABF1
	CMC Mixer 4 - CMC Mixer 6	
	CMC Mixer 7 - CMC Mixer 9	ABF6
	CMC Mixer 10 - CMC Mixer 12	
Anode Conductive Powder Booth	ACPB 1	ABF20
	ACPB 2	ABF22
	ACPB 3	ABF24
	ACPB 4	ABF26
CMC Booth	CMC Booth 1	ABF20
	CMC Booth 2	ABF22
	CMC Booth 3	ABF24
	CMC Booth 4	ABF26
Anode Conductive Powder Silos	ACPS 1-2	ABF12
	ACPS 3-4	ABF14
	ACPS 5-6	ABF16
	ACPS 7-8	ABF18
CMC Silo	CMC Silo 1	ABF12
	CMC Silo 2	ABF14
	CMC Silo 3	ABF16
	CMC Silo 4	ABF18
Anode Inlets	Anode Inlet 1-4	ABF19
	Anode Inlet 5-8	ABF21
	Anode Inlet 9-12	ABF23
	Anode Inlet 13-15	ABF25
Anode Silos	Anode Silo 1-4	ABF11
	Anode Silo 5-8	ABF13
	Anode Silo 9-12	ABF15
	Anode Silo 13-16	ABF17
Anode Mixer Hoppers	AMH 1-6	ABF11
	AMH 7-12	ABF13
	AMH 13-18	ABF15
	AMH 19-24	ABF17

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly

notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.2.5 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.2.1 and D.2.2, not later than 180 days after startup of the emission units and controls associated with ALine1-Aline4, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$, testing of the stack identified as "01-PEF-01 and 01-PEF-02" utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

(b) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.2.6 Parametric Monitoring - Bag Filters

The Permittee shall record the pressure drop across the bag filters listed in the table below at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a bag filter is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

Bag Filter ID						
ABF1	ABF5	ABF9	ABF13	ABF17	ABF21	ABF25
ABF2	ABF6	ABF10	ABF14	ABF18	ABF22	ABF26
ABF3	ABF7	ABF11	ABF15	ABF19	ABF23	
ABF4	ABF8	ABF12	ABF16	ABF20	ABF24	

The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.2.7 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue

only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.2.8 Record Keeping Requirement

(a) To document the compliance status with Condition D.2.6, the Permittee shall maintain daily records of the pressure drop for each bag filter. The Permittee shall include in its daily record when a pressure drop is not taken and the reason for the lack of a pressure drop record (e.g., the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

~~**SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS**~~

~~**Emissions Unit Description:**~~

~~(i) Cathode coating process, consisting of the following:~~

~~(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat1, approved in 2023 for construction, with nominal capacity of 39,000 square inches per minute of coil, and emissions controlled by the solvent recovery system.~~

~~(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat2, approved in 2023 for construction, with nominal capacity of 39,000 square inches per minute of coil, and emissions controlled by the solvent recovery system.~~

~~(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat3, approved in 2023 for construction, with nominal capacity of 39,000 square inches per minute of coil, and emissions controlled by the solvent recovery system.~~

~~(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat4, approved in 2023 for construction, with nominal capacity of 39,000 square inches per minute of coil, and emissions controlled by the solvent recovery system.~~

~~(5) One (1) integral solvent recovery system, approved in 2023 for construction, consisting of the following:~~

~~(A) Five (5) integral condensers in parallel, identified as NMPCond01-NMPCond05, approved in 2023 for construction, exhausting to CAT-07.~~

~~(B) Five (5) NMP recovery tanks, identified as NMPRT01- NMPRT 05, approved in 2023 for construction, receiving NMP from the 5 NMP recovery condensers (NMPCond01-NMPCond05).~~

~~(C) One (1) Adsorber, identified as CAT-07, approved in 2023 for construction, collectively consisting of five (5) adsorbers (CAT-07a, CAT-07b, CAT-07c,~~

CAT-07d, & CAT-07e standby), exhausting to stacks S-7a, S-7b, S-7c, S-7d, & S-7e, respectively, exhausting to atmosphere.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.3.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The combined VOC usage to the four (4) coating lines, identified as C-coat1, C-coat2, C-coat3 and C-coat4, shall not exceed 89,002.5 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) The minimum overall VOC capture efficiency for the five (5) integral condensers in parallel, identified as NMPCond01-NMPCond05, controlling emissions from coating lines identified as C-coat1, C-coat2, C-coat3 and C-coat4 shall be 98%.

(c) The minimum overall VOC capture and control efficiency for the Adsorber, identified as CAT-07 and collectively consisting of five (5) adsorbers (CAT-07a, CAT-07b, CAT-07c, CAT-07d, & CAT-07e standby, controlling emissions from the integral condensers (NMPCond01-NMPCond05) and from the four (4) coating lines identified as C-coat1, C-coat2, C-coat3 and C-coat4 shall be 95%.

Compliance with these limits, combined with the potential to emit VOC from all other emission units at this source, shall limit the source-wide total potential to emit of VOC to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.3.2 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the Permittee shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from each of the four coating lines, identified as C-coat1, C-coat2, C-coat3 and C-coat4.

D.3.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.3.4 VOC Control

(a) In order to ensure compliance with Conditions D.3.1 and D.3.2, the integral condensers, identified as NMPCond01-NMPCond05, shall be in operation and control emissions from each coating line, identified as C-coat1, C-coat2, C-coat3 and C-coat4 at all times when the coating lines are in operation.

(b) Pursuant to 326 IAC 8-1-2(a), and in order to ensure compliance with Conditions D.3.1 and D.3.2, the adsorber, identified as CAT-07, and consisting of CAT-07a, CAT-07b, CAT-07c, CAT-07d, shall be in operation and control emissions from each coating line, identified as C-coat1, C-coat2, C-coat3 and C-coat4 at all times when the coating lines are in operation.

(c) Pursuant to 326 IAC 8-1-2(a), and in order to ensure compliance with Conditions D.3.1 and D.3.2, in the event that the adsorber, identified as CAT-07, and consisting of CAT-07a, CAT-07b, CAT-07c, CAT-07d is malfunctioning or is down for regeneration, maintenance, or repairs the standby adsorber, identified as CAT-07e standby, shall be in operation and control emissions from each coating line, identified as C-coat1, C-coat2, C-coat3 and C-coat4, at all times when the coating lines are in operation.

D.3.5 Testing Requirements [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.3.1 and D.3.2, not later than 180 days after startup of each coating line, identified as C-coat1, C-coat2, C-coat3 and C-coat4, the Permittee shall perform VOC testing (including emission rate, overall destruction efficiency, and overall capture efficiency of the adsorber (CAT-07) utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration.

D.3.6 Volatile Organic Compounds (VOC) [326 IAC 8-1-2]

(a) Pursuant to 326 IAC 8-1-2(b), the VOC emissions shall be limited to no greater than the equivalent emissions, expressed as pounds of VOC per gallon of coating solids, allowed under the applicable emission limitation contained in D.3.2. Equivalency shall be determined by the following equation:

E = L / (1 - (L/D))

Where:

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied
L = Applicable emission limit in pounds of VOC per gallon of coating. 2.6 pounds of VOC per gallon less water

D = Baseline solvent density of VOC in coating and shall be equal to 7.36 pounds per gallon of solvent;

A solvent density of 7.36 pounds of VOC per gallon of coating shall be used to determine equivalent pounds of VOC per gallon of solids for the applicable emission limit contained in this article.

(b) The pounds of VOC per gallon of coating solids shall be limited to less than 4.02 pounds per gallon of solids.

(c) Pursuant to 326 IAC 8-1-2(c), the overall efficiency of the capture system and control device shall be no less than the equivalent calculated by the following equation:

O = (V - E) / V * 100

Where:

O = Equivalent overall efficiency of the capture system and control device as a percentage.
V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied.

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied (4.02 pounds of VOC per gallon of solids).

The overall efficiency of the adsorber, identified as CAT-07 shall be greater than 95.0%.

D.3.7 Volatile Organic Compounds (VOC)[326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Conditions D.3.1 and D.3.2 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the "as supplied" and "as applied" VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.3.8 Condenser Monitoring

The Permittee shall monitor daily the temperature of coolant exiting each integral condenser, (NMPCond01-NMPCond05). The integral condensers (NMPCond01-NMPCond05) shall be operated at a temperature which shall be recommended by the manufacturer.

If a condition exists which should result in a response, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response required by this condition. Failure to take a reasonable response shall be considered a deviation from this permit.

D.3.9 Carbon Tower Regeneration Pressure

The Permittee shall monitor and record the carbon tower regeneration pressure for each adsorbers (CAT-07a, CAT-07b, CAT-07c, CAT-07d, & CAT-07e standby) when any coating line, identified as C-coat1, C-coat2, C-coat3 and C-coat4 is in operation at least once per day. The carbon tower regeneration pressure for each adsorber (CAT-07a, CAT-07b, CAT-07c, CAT-07d, & CAT-07e standby) shall achieve a minimum 3 inches Hg during the regeneration cycle of the carbon towers. When for any one reading, the carbon tower regeneration pressure is outside the above mentioned minimum rate or the minimum rate established during the latest stack test, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit. The instruments used for determining the carbon tower regeneration pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.3.10 Carbon Adsorber Outlet Monitoring

(a) The Permittee shall monitor and record the outlet VOC concentration (ppm by volume as propane) of each adsorber (CAT-07a, CAT-07b, CAT-07c, CAT-07d, & CAT-07e standby) exhaust when any coating line, identified as C-coat1, C-coat2, C-coat3 and C-coat4 is in operation at least once per day.

(b) The Permittee shall determine the ppmv as propane concentration from the latest valid stack test that demonstrates compliance with Condition D.3.1.

(c) On and after the date the stack test results are available, the Permittee shall operate the carbon adsorber at or below the average concentration as observed during the latest compliant stack test.

(d) If the concentration rises above the above-mentioned average concentration, the Permittee shall take a reasonable response. Section C - Response to Excursions or

~~Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.~~

~~Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]~~

~~D.3.11 Record Keeping Requirement~~

~~(a) To document the compliance status with Conditions D.3.1 and D.3.2, the Permittee shall maintain records in accordance with (1) through (3) below for the four (4) coating lines, identified as C-coat1, C-coat2, C-coat3 and C-coat4. Records maintained for (1) through (4) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC usage and content limits in Conditions D.3.1 and D.3.2.~~

~~(1) The VOC content of each coating material used, as applied~~

~~(2) The VOC content per gallon of coating solids, as applied, of each coating material.~~

~~(3) The amount of each coating material and solvent used on a monthly basis.~~

~~(A) Records may include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used.~~

~~(B) Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents.~~

~~(4) The total VOC usage, including coating, dilution solvents, and cleaning solvents, for each month and each compliance period.~~

~~(b) In order to document the compliance status with Condition D.3.8, the Permittee shall maintain a daily record of the temperature of coolant exiting through each integral condenser (NMPCond01-NMPCond05) when in operation. The Permittee shall include in its daily record when a coolant temperature is not taken and the reason for the lack of a coolant temperature notation (e.g. the process did not operate that day).~~

~~(c) To document the compliance status with Condition D.3.9, the Permittee shall maintain daily records of the carbon tower regeneration pressure for each adsorbers (CAT-07a, CAT-07b, CAT-07c, CAT-07d, & CAT-07e standby). The Permittee shall include in its daily records when a pressure reading is not taken and the reason for the lack of the pressure reading (e.g., the process did not operate that day).~~

~~(d) To document the compliance status with Condition D.3.10, the Permittee shall maintain records of the daily VOC monitoring for each adsorber (CAT-07a, CAT-07b, CAT-07c, CAT-07d, & CAT-07e standby). The Permittee shall include in its daily records when a outlet concentration reading is not taken and the reason for the lack of the outlet concentration reading (e.g., the process did not operate that day).~~

~~(e) Section C - General Record Keeping Requirements, contains the Permittee's obligations with regard to the records required by this condition.~~

SECTION D.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

(j) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat1, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-01, exhausting to stack SR-01.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat2, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-02, exhausting to stack SR-02.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat3, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-03, exhausting to stack SR-03.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat4, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-04, exhausting to stack SR-04.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.3.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The controlled VOC emissions from each coating line C-coat1, C-coat2, C-coat3 and C-coat4, shall be less than 4.66 lb/hr, each.

Compliance with these limits, combined with the potential to emit VOC from all other emission units at this source, shall limit the source-wide total potential to emit of VOC to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.3.2 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the Permittee shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from each of the four coating lines, identified as C-coat1, C-coat2, C-coat3 and C-coat4.

D.3.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.3.4 VOC Control

In order to ensure compliance with Conditions D.3.1 and D.3.2, the integral Solvent Recovery towers, identified as SRT-01 to SRT-04, shall be in operation and control emissions from each coating line, identified as C-coat1, C-coat2, C-coat3 and C-coat4 at all times when the coating lines are in operation.

D.3.5 Testing Requirements [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.3.1 and D.3.2, not later than 180 days after startup of the coating line, identified as C-coat1 or C-coat2 or C-coat3 or C-coat4, the Permittee shall perform VOC testing (including emission rate, overall destruction efficiency, and overall capture efficiency) on one (1) of the associated integral Solvent recovery tower (SRT-01 or SRT-02 or SRT-03 or SRT-04) with testing alternated between SRT01,SRT02, SRT-03 and SRT04 utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall alternate between SRT01, SRT02, SRT-03 and SRT04 for each test cycle, such that testing on a Solvent Recovery tower shall not be repeated until SRT01, SRT02, SRT-03 and SRT04 have each been tested.

Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

D.3.6 Volatile Organic Compounds (VOC) [326 IAC 8-1-2]

(a) Pursuant to 326 IAC 8-1-2(b), the VOC emissions shall be limited to no greater than the equivalent emissions, expressed as pounds of VOC per gallon of coating solids, allowed under the applicable emission limitation contained in D.3.2. Equivalency shall be determined by the following equation:

E = L / (1 - (L/D))

Where:

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied

L = Applicable emission limit in pounds of VOC per gallon of coating. 2.6 pounds of VOC per gallon less water

D = Baseline solvent density of VOC in coating and shall be equal to 7.36 pounds per gallon of solvent;

A solvent density of 7.36 pounds of VOC per gallon of coating shall be used to determine equivalent pounds of VOC per gallon of solids for the applicable emission limit contained in this article.

(b) The pounds of VOC per gallon of coating solids shall be limited to less than 4.02 pounds per gallon of solids.

(c) Pursuant to 326 IAC 8-1-2(c), the overall efficiency of the capture system and control device shall be no less than the equivalent calculated by the following equation:

O = (V - E) / V * 100

Where:

O = Equivalent overall efficiency of the capture system and control device as a percentage.
V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied.
E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied (4.02 pounds of VOC per gallon of solids).

The overall efficiency of each integral Solvent Recovery Tower (SRT01-SRT04) shall be greater than 95.0%.

D.3.7 Volatile Organic Compounds (VOC)[326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Conditions D.3.1 and D.3.2 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the "as supplied" and "as applied" VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.3.8 Solvent Recovery Tower Monitoring

(a) In order to ensure compliance with Conditions D.3.1 and D.3.2, a continuous monitoring system shall be calibrated, maintained, and operated on each of the integral Solvent Recovery Towers, SRT01-SRT04, for measuring coolant exit temperature. For purposes of this condition continuous shall mean temperature measurement no less often than once per fifteen (15) minutes. The output of this system shall be recorded as a three (3) hour average. The integral Solvent Recovery Towers, (SRT01-SRT04) shall be operated at the 3-hour average temperature which shall be recommended by the manufacturer.

(b) On and after the date the stack test results are available, the Permittee shall ensure that coolant exit temperatures of the integral Solvent Recovery Towers shall be at or below the coolant exit temperatures as observed during the latest complaint stack test. The minimum specified temperature is the three (3) hour average temperature as observed during the most recent valid compliant stack test.

(c) The Permittee shall monitor and record water flow rate at each integral Solvent Recovery Tower, (SRT01-SRT04) at least once per day. The integral Solvent Recovery Tower, (SRT01-SRT04) shall be operated at a water flow rate which shall be recommended by the manufacturer.

(d) The Permittee shall monitor daily and record the pressure drop across the fan for each integral Solvent Recovery Tower (SRT01-SRT04) at least once per day. The

integral Solvent Recovery Tower, (SRT01-SRT04) shall be operated at a pressure drop across the fan which shall be recommended by the manufacturer.

If a condition exists which should result in a response, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response required by this condition. Failure to take a reasonable response shall be considered a deviation from this permit.

D.3.9 Solvent Recovery Tower Outlet Monitoring

(a) The Permittee shall monitor and record the outlet VOC concentration (ppm by volume as propane) of each integral Solvent Recovery Tower, (SRT01-SRT04) exhaust when any coating line, identified as C-coat1, C-coat2, C-coat3 and C-coat4 is in operation at least once per day.

(b) The Permittee shall operate the integral Solvent Recovery Tower, (SRT01-SRT04) at or below the average concentration as based on manufacturer specification.

(c) If the concentration rises above the above-mentioned average concentration, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.3.10 Record Keeping Requirement

(a) In order to document the compliance status with Condition D.3.8(a) and D.3.8(b), the Permittee shall maintain continuous temperature records (on a 3-hour average basis) for the coolant exiting through each integral Solvent Recovery tower and the 3-hour average temperature used to demonstrate compliance during the most recent compliant stack test. The Permittee shall include in its records when the continuous temperature records were not taken and the reason for the lack of continuous temperature records (e.g. the process did not operate that day).

(b) To document the compliance status with Condition D.3.8(c) , the Permittee shall maintain daily records of the water flow rate at each integral Solvent Recovery Tower, (SRT01-SRT04). The Permittee shall include in its daily records when a pressure reading is not taken and the reason for the lack of water flow rate reading (e.g., the process did not operate that day).

(c) To document the compliance status with Condition D.3.8(d) , the Permittee shall maintain daily records of the record the pressure drop across the fan for each integral Solvent Recovery Tower, (SRT01-SRT04). The Permittee shall include in its daily records when a pressure reading is not taken and the reason for the lack of the pressure reading (e.g., the process did not operate that day).

(d) To document the compliance status with Condition D.3.9, the Permittee shall maintain records of the daily VOC monitoring for each integral Solvent Recovery Tower, (SRT01-SRT04). The Permittee shall include in its daily records when a outlet concentration reading is not taken and the reason for the lack of the outlet concentration reading (e.g., the process did not operate that day).

(e) Section C - General Record Keeping Requirements, contains the Permittee's obligations with regard to the records required by this condition.

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(j) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat1, approved in 2023 for construction, with nominal capacity of 9,842 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat2, approved in 2023 for construction, with nominal capacity of 9,842 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat3, approved in 2023 for construction, with nominal capacity of 9,842 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat4, approved in 2023 for construction, with nominal capacity of 9,842 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.4.1 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the Permittee shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from each of the four coating lines, identified as A-coat1, A-coat2, A-coat3 and A-coat4.

D.4.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.4.3 Volatile Organic Compounds [326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Condition D.4.1 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the “as supplied” and “as applied” VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.4.4 Record Keeping Requirement

(a) To document the compliance status with Condition D.4.1, the Permittee shall maintain records in accordance with (1) through (2) below. Records maintained for (1) through (2) shall be taken as stated below and shall be complete and sufficient to establish compliance with the VOC usage limits established in Condition D.4.1.

~~(1) The VOC content of each coating material and solvent used less water.~~

~~(2) The amount of each coating material and solvent used on monthly basis.~~

~~(A) Records shall include purchase orders, invoices, and safety data sheets (SDS) necessary to verify the type and amount used.~~

~~(B) Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents.~~

~~(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.~~

SECTION D.4 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:
(k) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat1, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat2, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat3, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat4, approved in 2023 for construction and approved in 2024 for modification, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.4.1 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the Permittee shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from each of the four coating lines, identified as A-coat1, A-coat2, A-coat3 and A-coat4.

D.4.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.4.3 Volatile Organic Compounds [326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Condition D.4.1 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the "as supplied" and "as applied" VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.4.4 Record Keeping Requirement

(a) To document the compliance status with Condition D.4.1, the Permittee shall maintain records in accordance with (1) through (2) below. Records maintained for (1) through (2) shall be taken as stated below and shall be complete and sufficient to establish compliance with the VOC usage limits established in Condition D.4.1.

(1) The VOC content of each coating material and solvent used less water.

(2) The amount of each coating material and solvent used on monthly basis.

(A) Records shall include purchase orders, invoices, and safety data sheets (SDS) necessary to verify the type and amount used.

(B) Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents.

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

~~**SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS**~~

~~**Emissions Unit Description:**~~

~~(k) Anode slitting process, consisting of the following:~~

~~(1) One (1) Anode slitter, identified as AS1, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (ASBF1-ASBF4), and exhausting to stack (ASP).~~

~~(2) One (1) Anode slitter, identified as AS2, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (ASBF5-ASBF8), and exhausting to stack (ASP).~~

~~(3) One (1) Anode slitter, identified as AS3, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (ASBF9-ASBF12), and exhausting to stack (ASP).~~

~~(4) One (1) Anode slitter, identified as AS4, approved for construction in 2023, with nominal capacity 3,937 inches per min, controlled by four bag filters (ASBF13-ASBF16), and exhausting to stack (ASP).~~

~~(l) Cathode slitting process, consisting of the following:~~

~~(1) One (1) Cathode slitter, identified as CS1, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (CSBF1-CSBF4), and exhausting to stack (CSP).~~

~~(2) One (1) Cathode slitter, identified as CS2, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (CSBF5-CSBF8), and exhausting to stack (CSP).~~

~~(3) One (1) Cathode slitter, identified as CS3, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (CSBF9-CSBF12), and exhausting to stack (CSP).~~

~~(4) One (1) Cathode slitter, identified as CS4, approved for construction in 2023, with nominal capacity 3,937 inches per minute, controlled by four bag filters (CSBF13-CSBF16), and exhausting to stack (CSP).~~

~~(m) One (1) Assembly process, consisting of the following:~~

~~(1) Four (4) Stacking Lines, consisting of the following:~~

~~Line 1~~

~~(A) Thirty-two (32) stackers, identified as S1_1 to S1_32, approved in 2023 for construction, with a nominal throughput of 2,096 cells/hr, total, and each controlled by a bag filter (S1_BF1 to S1_BF32) respectively, exhausting to stack (SL).~~

~~Line 2~~

~~(B) Thirty-two (32) stackers, identified as S2_1 to S2_32, approved in 2023 for construction, with a nominal throughput of 2,096 cells/hr, and each controlled by a bag filter (S2_BF1 to S2_BF32) respectively, exhausting to stack (SL).~~

~~Line 3~~

~~(C) Twenty-five (25) stackers, identified as S3_1 to S3_25, approved in 2023 for construction, with a nominal throughput of 2,096 cells/hr, and each controlled by a bag filter (S3_BF1 to S3_BF25) respectively, exhausting to stack (SL).~~

~~Line 4~~

~~(D) Twenty-five (25) stackers, identified as S4_1 to S4_25, approved in 2023 for construction, with a nominal throughput of 2,096 cells/hr, and each controlled by a bag filter (S4_BF1 to S4_BF25) respectively, exhausting to stack (SL).~~

~~(2) Four (4) LPW lines, consisting of the following:~~

~~Line 1~~

~~(A) Two (2) LPW welding, identified as LPW1-1 to LPW1-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, and each controlled by a bag filter (LPWBF1 to LPWBF2) respectively, exhausting to stack (LPW)~~

~~Line 2~~

~~(B) Two (2) LPW welding, identified as LPW2-1 to LPW2-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, and each controlled by a bag filter (LPWBF3 to LPWBF4) respectively, exhausting to stack (LPW)~~

~~Line 3~~

~~(C) Two (2) LPW welding, identified as LPW3-1 to LPW3-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, and each controlled by a bag filter (LPWBF5 to LPWBF6) respectively, exhausting to stack (LPW)~~

~~Line 4~~

~~(D) Two (2) LPW welding, identified as LPW4-1 to LPW4-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, and each controlled by a bag filter (LPWBF7 to LPWBF8) respectively, exhausting to stack (LPW)~~

~~(3) Four (4) CanCap Welding lines, consisting of the following:~~

~~Line 1~~

~~(A) Two (2) CanCap welding, identified as CanCap1-1 to CANCAP1-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (CANCAPBF1 to CANCAPBF2) respectively, exhausting to stack (CANCAP).~~

~~Line 2~~

~~(B) Two (2) CanCap welding, identified as CANCAP2-1 to CANCAP2-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (CANCAPBF3 to CANCAPBF4) respectively, exhausting to stack (CANCAP).~~

~~Line 3~~

~~(C) Two (2) CanCap welding, identified as CANCAP3-1 to CANCAP3-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (CANCAPBF5 to CANCAPBF6) respectively, exhausting to stack (CANCAP).~~

~~Line 4~~

~~(D) Two (2) CanCap welding, identified as CANCAP4-1 to CANCAP4-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and~~

each controlled by a bag filter (CANCAPBF7 to CANCAPBF8) respectively, exhausting to stack (CANCAP).

(4) One (1) electrolyte filling process, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, with a nominal throughput of 2,096 cells/hr, using Activated Carbon Towers (CAT-02a, CAT-02b, CAT-02c, CAT-02d, & CAT-02e Standby) for VOC/HAP control, exhausting to stack (S-2a, S-2b, S-2c, S-2d, and S-2e Standby).

(n) One (1) formation process, identified as Formation, approved in 2023 for construction, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(1) One (1) taping process, consisting of the following:

(A) One (1) taping machine, identified as TM-1, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF1-TMBF4), exhausting indoor.

(B) One (1) taping machine, identified as TM-2, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF5-TMBF8), exhausting indoor.

(C) One (1) taping machine, identified as TM-3, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF9-TMBF12), exhausting indoor.

(D) One (1) taping machine, identified as TM-4, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF13-TMBF16), exhausting indoor.

(E) One (1) taping machine, identified as TM-5, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF17-TMBF20), exhausting indoor.

(F) One (1) taping machine, identified as TM-6, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF21-TMBF24), exhausting indoor.

(G) One (1) taping machine, identified as TM-7, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF25-TMBF28), exhausting indoor.

(H) One (1) taping machine, identified as TM-8, approved in 2023 for construction, with a nominal capacity 1,048 cells/hr, and controlled by bag filters (TMBF29-TMBF32), exhausting indoor.

(2) Four (4) SealPin Welding lines, consisting of the following:

Line 1

(A) Two (2) seal pin welding, identified as SPW1-1 to SPW1-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (SPWBF1), exhausting to stack (SPW).

Line 2

~~(B) Two (2) seal pin welding, identified as SPW2-1 to SPW2-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (SPWBF2) respectively, exhausting to stack (SPW).~~

~~Line 3~~

~~(C) Two (2) seal pin welding, identified as SPW3-1 to SPW3-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (SPWBF3) respectively, exhausting to stack (SPW).~~

~~Line 4~~

~~(D) Two (2) seal pin welding, identified as SPW4-1 to SPW4-2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and each controlled by a bag filter (SPW4) respectively, exhausting to stack (SPW).~~

~~(3) Four (4) HVC Front Side Moving Device, identified as HVC1-HVC4, approved in 2023 for construction, with a combined nominal capacity of 8,114 cells/hr, and Activated Carbon Tower (CAT-03a, CAT-03b & CAT-03c /Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).~~

~~(o) One (1) module process, identified as Module, approved in 2023 for construction, and consisting of the following~~

~~Line 1~~

~~(1) One (1) frame side welding, identified as FSW1, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF1), exhausting to stack (M).~~

~~(2) One (1) busbar welding, identified as BW1, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF2), exhausting to stack (M).~~

~~(3) One (1) side dispenser, identified as SD1, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(4) One (1) HBB dispenser, identified as HBB1, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(5) Two (2) PSA dispensers, identified as PSA1-PSA2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(6) Two (2) curing station, identified as CS1-CS2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~Line 2~~

~~(7) One (1) frame side welding, identified as FSW2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF3), exhausting to stack (M).~~

~~(8) One (1) busbar welding, identified as BW2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF4), exhausting to stack (M).~~

~~(9) One (1) side dispenser, identified as SD2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(10) One (1) HBB dispenser, identified as HBB2, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(11) Two (2) PSA dispensers, identified as PSA3-PSA4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(12) Two (2) curing station, identified as CS3-CS4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~Line 3~~

~~(13) One (1) frame side welding, identified as FSW3, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF5), exhausting to stack (M).~~

~~(14) One (1) busbar welding, identified as BW3, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF6), exhausting to stack (M).~~

~~(15) One (1) side dispenser, identified as SD3, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(16) One (1) HBB dispenser, identified as HBB3, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(17) Two (2) PSA dispensers, identified as PSA5-PSA6, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(18) Two (2) curing station, identified as CS5-CS6, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~Line 4~~

~~(19) One (1) frame side welding, identified as FSW4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF7), exhausting to stack (M).~~

~~(20) One (1) busbar welding, identified as BW4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, total, and controlled by a bag filter (MBF8), exhausting to stack (M).~~

~~(21) One (1) side dispenser, identified as SD4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(22) One (1) HBB dispenser, identified as HBB4, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(23) Two (2) PSA dispensers, identified as PSA7-PSA8, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor.~~

~~(24) Two (2) curing station, identified as CS7-CS8, approved in 2023 for construction, with a nominal capacity of 2,096 cells/hr, uncontrolled and venting indoor~~

~~(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)~~

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.5.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Anode Slitters	AS1-AS4	0.03 grain/dscf *
Cathode Slitters	CS1-CS4	0.03 grain/dscf *
Stackers	S1_1 to S1_32	0.03 grain/dscf *
	S2_1 to S2_32	
	S3_1 to S3_25	
	S4_1 to S4_25	
LPW welding	LPW1-1 to LPW1-2	0.03 grain/dscf *
	LPW2-1 to LPW2-2	
	LPW3-1 to LPW3-2	
	LPW4-1 to LPW4-2	
CanCap welding	CanCap1-1 to CANCAP1-2	0.03 grain/dscf *
	CanCap2-1 to CANCAP2-2	
	CanCap3-1 to CANCAP3-2	
	CanCap4-1 to CANCAP4-2	
seal pin welding	SPW1-1 to SPW1-2	0.03 grain/dscf *
	SPW2-1 to SPW2-2	
Taping machines	TM1-TM8	0.03 grain/dscf *
frame side welding	FSW1-FSW4	0.03 grain/dscf *
busbar welding	BW1-BW4	0.03 grain/dscf *

* PM emissions shall not exceed the above limit for each individual unit

D.5.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.5.3 Particulate Control

(a) In order to assure compliance with Condition D.5.1, the bag filters for particulate control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit Description	Unit ID	Control
Anode slitter	AS1	ASBF1- ASBF4
Anode slitter	AS2	ASBF5- ASBF8
Anode slitter	AS3	ASBF9-ASBF12
Anode slitter	AS4	ASBF13- ASBF16
Cathode slitter	CS1	CSBF1- CSBF4
Cathode slitter	CS2	CSBF5- CSBF8
Cathode slitter	CS3	CSBF9- CSBF12
Cathode slitter	CS4	CSBF13- CSBF16
stackers	S1_1 to S1_32	S1_BF1 to S1_BF32
stackers	S2_1 to S2_32	S2_BF1 to S2_BF32

~~Unit Description~~	~~Unit ID~~	~~Control~~
~~stackers~~	~~S3_1 to S3_25~~	~~S3_BF1 to S3_BF25~~
~~stackers~~	~~S4_1 to S4_25~~	~~S4_BF1 to S4_BF25~~
~~LPW welding~~	~~LPW1-1 to LPW1-2~~	~~LPWBF1 to LPWBF2~~
~~LPW welding~~	~~LPW2-1 to LPW2-2~~	~~LPWBF3 to LPWBF4~~
~~LPW welding~~	~~LPW3-1 to LPW3-2~~	~~LPWBF5 to LPWBF6~~
~~LPW welding~~	~~LPW4-1 to LPW4-2~~	~~LPWBF7 to LPWBF8~~
~~CanCap welding~~	~~CanCap1-1 to CANCAP1-2~~	~~CANCAPBF1 to CANCAPBF2~~
~~CanCap welding~~	~~CANCAP2-1 to CANCAP2-2~~	~~CANCAPBF3 to CANCAPBF4~~
~~CanCap welding~~	~~CANCAP3-1 to CANCAP3-2~~	~~CANCAPBF5 to CANCAPBF6~~
~~CanCap welding~~	~~CANCAP4-1 to CANCAP4-2~~	~~CANCAPBF7 to CANCAPBF8~~
~~taping machine~~	~~TM-1~~	~~TMBF1-TMBF4~~
~~taping machine~~	~~TM-2~~	~~TMBF5-TMBF8~~
~~taping machine~~	~~TM-3~~	~~TMBF9-TMBF12~~
~~taping machine~~	~~TM-4~~	~~TMBF13-TMBF16~~
~~taping machine~~	~~TM-5~~	~~TMBF17-TMBF20~~
~~taping machine~~	~~TM-6~~	~~TMBF21-TMBF24~~
~~taping machine~~	~~TM-7~~	~~TMBF25-TMBF28~~
~~taping machine~~	~~TM-8~~	~~TMBF29-TMBF32~~
~~seal pin welding~~	~~SPW1-1 to SPW1-2~~	~~SPWBF1~~
~~seal pin welding~~	~~SPW2-1 to SPW2-2~~	~~SPWBF2~~
~~seal pin welding~~	~~SPW3-1 to SPW3-2~~	~~SPWBF3~~
~~seal pin welding~~	~~SPW4-1 to SPW4-2~~	~~SPWBF4~~
~~frame side welding~~	~~FSW1~~	~~MBF1~~
~~busbar welding~~	~~BW1~~	~~MBF2~~
~~frame side welding~~	~~FSW2~~	~~MBF3~~
~~busbar welding~~	~~BW2~~	~~MBF4~~
~~frame side welding~~	~~FSW3~~	~~MBF5~~
~~busbar welding~~	~~BW3~~	~~MBF6~~
~~frame side welding~~	~~FSW4~~	~~MBF7~~
~~busbar welding~~	~~BW4~~	~~MBF8~~

~~(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.~~

SECTION D.5 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:
(l) Anode slitting process, consisting of the following:

(1) One (1) Anode slitter, identified as AS1, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF1- ASBF4), and exhausting to stack (01-DCEF-1).

(2) One (1) Anode slitter, identified as AS2, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF5- ASBF8), and exhausting to stack (01-DCEF-1).

(3) One (1) Anode slitter, identified as AS3, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF9-ASBF12), and exhausting to stack (01-DCEF-1).

(4) One (1) Anode slitter, identified as AS4, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF13- ASBF16), and exhausting to stack (01-DCEF-1).

(m) Cathode slitting process, consisting of the following:

(1) One (1) Cathode slitter, identified as CS1, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF1- CSBF4), and exhausting to stack (01-DCEF-2).

(2) One (1) Cathode slitter, identified as CS2, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF5- CSBF8), and exhausting to stack (01-DCEF-2).

(3) One (1) Cathode slitter, identified as CS3, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF9- CSBF12), and exhausting to stack (01-DCEF-2).

(4) One (1) Cathode slitter, identified as CS4, approved for construction in 2023, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF13- CSBF16), and exhausting to stack (01-DCEF-2).

(n) One (1) Assembly process, consisting of the following:

(1) Four (4) Stacking Lines, consisting of the following:

Line 1

(A) Thirty-two (32) stackers, identified as S1_1 to S1_32, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S1_BF1 to S1_BF32) respectively, exhausting to stack (01-DCEF-3).

Line 2

(B) Thirty-two (32) stackers, identified as S2_1 to S2_32, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S2_BF1 to S2_BF32) respectively, exhausting to stack (01-DCEF-4).

Line 3

(C) Twenty-five (25) stackers, identified as S3_1 to S3_25, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S3_BF1 to S3_BF25) respectively, exhausting to stack (01-DCEF-5).

Line 4

(D) Twenty-five (25) stackers, identified as S4_1 to S4_25, approved in 2023 for construction and approved in 2024 for modification, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S4_BF1 to S4_BF25) respectively, exhausting to stack (01-DCEF-6).

(2) Four (4) LPW lines, consisting of the following:

Line 1

(A) Two (2) LPW welding, identified as LPW1-1 to LPW1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF1 to LPWBF2) respectively, exhausting to stack (01-DCEF-7)

Line 2

(B) Two (2) LPW welding, identified as LPW2-1 to LPW2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF3 to LPWBF4) respectively, exhausting to stack (01-DCEF-7)

Line 3

(C) Two (2) LPW welding, identified as LPW3-1 to LPW3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF5 to LPWBF6) respectively, exhausting to stack (01-DCEF-7)

Line 4

(D) Two (2) LPW welding, identified as LPW4-1 to LPW4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF7 to LPWBF8) respectively, exhausting to stack (01-DCEF-7)

(3) Four (4) CanCap Welding lines, consisting of the following:

Line 1

(A) Two (2) CanCap welding, identified as CanCap1-1 to CANCAP1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF1 to CANCAPBF2) respectively, exhausting to stack (01-DCEF-8).

Line 2

(B) Two (2) CanCap welding, identified as CANCAP2-1 to CANCAP2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF3 to CANCAPBF4) respectively, exhausting to stack (01-DCEF-8).

Line 3

(C) Two (2) CanCap welding, identified as CANCAP3-1 to CANCAP3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF5 to CANCAPBF6) respectively, exhausting to stack (01-DCEF-8).

Line 4

(D) Two (2) CanCap welding, identified as CANCAP4-1 to CANCAP4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF7 to CANCAPBF8) respectively, exhausting to stack (01-DCEF-8).

(4) Four (4) electrolyte filling processes, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, approved for construction in 2023 and approved for modification in 2024, using Activated Carbon Towers (CAT-02a, CAT-02b, CAT-02c, CAT-02d, & CAT-02e Standby) for VOC/HAP control for all four lines, exhausting to stack (S-2a, S-2b, S-2c, S-2d, and S-2e Standby), consisting of the following:

Line 1

(A) Eight (8) electrolyte filling machines, identified as EFM1-EFM8, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 2

(B) Eight (8) electrolyte filling machines, identified as EFM9-EFM16, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 3

(B) Eight (8) electrolyte filling machines identified as EFM17-EFM24, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 4

(C) Eight (8) electrolyte filling machines, identified as EFM25-EFM32, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

(o) One (1) formation process, identified as Formation, approved in 2023 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(1) One (1) taping process, with a combined maximum process capacity of 3,588 cells per hour, total, consisting of the following:

(A) One (1) taping machine, identified as TM-1, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF1-TMBF4), exhausting through general exhaust stack 02-EF-301-302.

(B) One (1) taping machine, identified as TM-2, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF5-TMBF8), exhausting through general exhaust stack 02-EF-301-302.

(C) One (1) taping machine, identified as TM-3, approved in 2023 for construction and approved in 2024 for modification, controlled by bag

filters (TMBF9-TMBF12), exhausting through general exhaust stack 02-EF-301-302.

(D) One (1) taping machine, identified as TM-4, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF13-TMBF16), exhausting through general exhaust stack 02-EF-301-302.

(E) One (1) taping machine, identified as TM-5, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF17-TMBF20), exhausting through general exhaust stack 02-EF-301-302.

(F) One (1) taping machine, identified as TM-6, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF21-TMBF24), exhausting through general exhaust stack 02-EF-301-302.

(G) One (1) taping machine, identified as TM-7, approved in 2023 for construction and approved in 2024 for modification, controlled by bag filters (TMBF25-TMBF28), exhausting through general exhaust stack 02-EF-301-302.

(H) One (1) taping machine, identified as TM-8, approved in 2023 for construction and approved in 2024 for modification, and controlled by bag filters (TMBF29-TMBF32), exhausting through general exhaust stack 02-EF-301-302.

(2) Four (4) SealPin Welding lines, consisting of the following:

Line 1

(A) Two (2) seal pin welding, identified as SPW1-1 to SPW1-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (SPWBF1), exhausting through general exhaust stack 02-301-302.

Line 2

(B) Two (2) seal pin welding, identified as SPW2-1 to SPW2-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF2) respectively, exhausting through general exhaust stack 02-EF-301-302.

Line 3

(C) Two (2) seal pin welding, identified as SPW3-1 to SPW3-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF3) respectively, exhausting through general exhaust stack 02-EF-301-302.

Line 4

(D) Two (2) seal pin welding, identified as SPW4-1 to SPW4-2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag

filter (SPWBF4) respectively, exhausting to through general exhaust stack 02-EF-301-302.

(3) Four (4) HVC Front Side Moving Device, identified as HVC1-HVC4, approved in 2023 for construction and approved in 2024 for modification, with a combined maximum capacity of 3,588 cells/hr, and Activated Carbon Tower (CAT-03a, CAT-03b & CAT-03c /Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby).

(p) One (1) module process, identified as Module, approved in 2023 for construction and approved in 2024 for modification, and consisting of the following

Line 1

(1) One (1) frame side welding, identified as FSW1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897cells/hr, total, and controlled by a bag filter (MBF1), exhausting through general exhaust stack 02-EF-301-302.

(2) One (1) busbar welding, identified as BW1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF2), exhausting through general exhaust stack 02-EF-301-302.

(3) One (1) side dispenser, identified as SD1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB1, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA1-PSA2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(6) Two (2) curing stations, identified as CUS1-CUS2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(7) One (1) Frame end welding, identified as FEW1, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF9), exhausting through general exhaust stack 02-EF-301-302.

Line 2

(8) One (1) frame side welding, identified as FSW2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF3), exhausting through general exhaust stack 02-EF-301-302.

(9) One (1) busbar welding, identified as BW2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF4), exhausting through general exhaust stack 02-EF-301-302.

(10) One (1) side dispenser, identified as SD2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(11) One (1) HBB dispenser, identified as HBB2, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(12) Two (2) PSA dispensers, identified as PSA3-PSA4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(13) Two (2) curing stations, identified as CUS3-CUS4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(14) One (1) Frame end welding, identified as FEW2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF10), exhausting through general exhaust stack 02-EF-301-302.

Line 3

(15) One (1) frame side welding, identified as FSW3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF5), exhausting through general exhaust stack 02-EF-301-302.

(16) One (1) busbar welding, identified as BW3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF6), exhausting through general exhaust stack 02-EF-301-302.

(17) One (1) side dispenser, identified as SD3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(18) One (1) HBB dispenser, identified as HBB3, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(19) Two (2) PSA dispensers, identified as PSA5-PSA6, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(20) Two (2) curing stations, identified as CUS5-CUS6, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(21) One (1) Frame end welding, identified as FEW3, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF11), exhausting through general exhaust stack 02-EF-301-302.

Line 4

(22) One (1) frame side welding, identified as FSW4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of

897 cells/hr, total, and controlled by a bag filter (MBF7), exhausting through general exhaust stack 02-EF-301-302.

(23) One (1) busbar welding, identified as BW4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF8), exhausting through general exhaust stack 02-EF-301-302.

(24) One (1) side dispenser, identified as SD4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(25) One (1) HBB dispenser, identified as HBB4, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(26) Two (2) PSA dispensers, identified as PSA7-PSA8, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(27) Two (2) curing stations, identified as CUS7-CUS8, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(28) One (1) Frame end welding, identified as FEW4, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF12), exhausting through general exhaust stack 02-EF-301-302.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.5.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Anode Slitters	AS1-AS4	0.03 grain/dscf *
Cathode Slitters	CS1-CS4	0.03 grain/dscf *
Stackers	S1_1 to S1_32	0.03 grain/dscf *
	S2_1 to S2_32	
	S3_1 to S3_25	
	S4_1 to S4_25	
LPW welding	LPW1-1 to LPW1-2	0.03 grain/dscf *
	LPW2-1 to LPW2-2	
	LPW3-1 to LPW3-2	
	LPW4-1 to LPW4-2	
CanCap welding	CanCap1-1 to CANCAP1-2	0.03 grain/dscf *
	CanCap2-1 to CANCAP2-2	
	CanCap3-1 to CANCAP3-2	
	CanCap4-1 to CANCAP4-2	
seal pin welding	SPW1-1 to SPW1-2	0.03 grain/dscf *

	SPW2-1 to SPW2-2	
	SPW3-1 to SPW3-2	
	SPW4-1 to SPW4-2	
Taping machines	TM1-TM8	0.03 grain/dscf *
frame side welding	FSW1-FSW4	0.03 grain/dscf *
busbar welding	BW1-BW4	0.03 grain/dscf *
Frame end welding	FEW1-FEW4	0.03 grain/dscf *

*** PM emissions shall not exceed the above limit for each individual unit**

D.5.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.5.3 Particulate Control

(a) In order to assure compliance with Condition D.5.1, the bag filters for particulate control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit Description	Unit ID	Control
Anode slitter	AS1	ASBF1- ASBF4
Anode slitter	AS2	ASBF5- ASBF8
Anode slitter	AS3	ASBF9-ASBF12
Anode slitter	AS4	ASBF13- ASBF16
Cathode slitter	CS1	CSBF1- CSBF4
Cathode slitter	CS2	CSBF5- CSBF8
Cathode slitter	CS3	CSBF9- CSBF12
Cathode slitter	CS4	CSBF13- CSBF16
stackers	S1_1 to S1_32	S1_BF1 to S1_BF32
stackers	S2_1 to S2_32	S2_BF1 to S2_BF32
stackers	S3_1 to S3_25	S3_BF1 to S3_BF25
stackers	S4_1 to S4_25	S4_BF1 to S4_BF25
LPW welding	LPW1-1 to LPW1-2	LPWBF1 to LPWBF2
LPW welding	LPW2-1 to LPW2-2	LPWBF3 to LPWBF4
LPW welding	LPW3-1 to LPW3-2	LPWBF5 to LPWBF6
LPW welding	LPW4-1 to LPW4-2	LPWBF7 to LPWBF8
CanCap welding	CanCap1-1 to CANCAP1-2	CANCAPBF1 to CANCAPBF2
CanCap welding	CANCAP2-1 to CANCAP2-2	CANCAPBF3 to CANCAPBF4
CanCap welding	CANCAP3-1 to CANCAP3-2	CANCAPBF5 to CANCAPBF6
CanCap welding	CANCAP4-1 to CANCAP4-2	CANCAPBF7 to CANCAPBF8
taping machine	TM-1	TMBF1-TMBF4
taping machine	TM-2	TMBF5-TMBF8
taping machine	TM-3	TMBF9-TMBF12
taping machine	TM-4	TMBF13-TMBF16
taping machine	TM-5	TMBF17-TMBF20
taping machine	TM-6	TMBF21-TMBF24
taping machine	TM-7	TMBF25-TMBF28
taping machine	TM-8	TMBF29-TMBF32

Unit Description	Unit ID	Control
seal pin welding	SPW1-1 to SPW1-2	SPWBF1
seal pin welding	SPW2-1 to SPW2-2	SPWBF2
seal pin welding	SPW3-1 to SPW3-2	SPWBF3
seal pin welding	SPW4-1 to SPW4-2	SPWBF4
frame side welding	FSW1	MBF1
busbar welding	BW1	MBF2
frame side welding	FSW2	MBF3
busbar welding	BW2	MBF4
frame side welding	FSW3	MBF5
busbar welding	BW3	MBF6
frame side welding	FSW4	MBF7
busbar welding	BW4	MBF8
Frame end Welding	FEW1	MBF9
Frame end Welding	FEW2	MBF10
Frame end Welding	FEW3	MBF11
Frame end Welding	FEW4	MBF12

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Insignificant activities

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2023 for construction, with a maximum heat input capacity of 5.0 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) One (1) natural gas-fired hot water heater, identified as W-Heating, approved in 2023 for construction, with a maximum heat input capacity of 15.0 MMBTU/hr, using no control, and exhausting to the atmosphere.

(d) Sixty (60) natural gas-fired space heaters, identified as S-Heating01 through S-Heating-60, approved in 2023 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(e) One (1) diesel storage tank, identified as DST-1, approved in 2023 for construction, with a maximum capacity of 500 gallons, using no control, and exhausting to the atmosphere.

(f) One (1) diesel fire pump, identified as F-pump, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(g) Four (4) cooling towers, identified as CWT01-CWT04, approved in 2023 for construction, with a maximum capacity of 120,000 gal/min each, using no control, and exhausting to atmosphere.

(h) Maintenance welding, gas metal arc welding (GMAW), 5,000 lbs of carbon steel electrode per year, uncontrolled, and exhausting to the indoors.

(i) Maintenance painting, using aerosol cans, with a maximum usage of five (5) 12oz cans per week uncontrolled, and exhausting to the indoors.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

~~**Emission Limitations and Standards [326 IAC 2-7-5(1)]**~~

~~D.6.1 Particulate Emission Limitations [326 IAC 6.5-1-2]~~

~~(a) Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:~~

~~Unit/Process Name~~	~~Unit ID~~	~~Limit~~
~~Natural Gas-Fired Emergency Generators~~	~~Emgen01-Emgen10~~	~~0.03 grain/dscf *~~
~~Natural Gas-Fired Hot Water Heater~~	~~W-Heating~~	~~0.03 grain/dscf *~~
~~Natural gas-fired space heaters~~	~~S-Heating01 to S-Heating-60~~	~~0.03 grain/dscf *~~
~~Diesel Fire Pump~~	~~F-pump~~	~~0.03 grain/dscf *~~
~~cooling towers~~	~~CWT01-CWT04~~	~~0.03 grain/dscf *~~
~~Maintenance welding~~	~~Maintenance welding~~	~~.03 grain/dscf *~~

~~* PM emissions shall not exceed the above limit for each individual unit~~

~~(b) Pursuant to 326 IAC 6.5-1-2(b)(3), the particulate matter emissions from each natural gas-fired boiler (Boiler1 and Boiler2) shall not exceed 0.01 grains per dry standard cubic foot when combusting natural gas.~~

~~D.6.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]~~

~~A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.~~

SECTION D.6 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 1:

(q) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024, for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

Insignificant activities

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating1 to W-Heating3, approved in 2023 for construction and approved for modification in 2024, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating01 through S-Heating-60, approved in 2023 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump1, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Twenty-six (26) cooling towers, identified as CWT01-CWT26, approved in 2023 for construction and approved in 2024 for modification, with a maximum capacity of 4,615 gal/min each, using no control, and exhausting to the atmosphere.

(f) Maintenance welding, gas metal arc welding (GMAW), 5,000 lbs of carbon steel electrode per year, uncontrolled, and exhausting to the indoors.

(g) Maintenance painting, using aerosol cans, with a maximum usage of five (5) 12oz cans per week uncontrolled, and exhausting to the indoors.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.6.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

(a) Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Natural Gas-Fired Emergency Generators	Emgen01-Emgen10	0.03 grain/dscf *
Natural Gas-Fired Hot Water Heater	W-Heating1 to W-Heating3	0.03 grain/dscf *
Natural gas-fired space heaters	S-Heating01 to S-Heating-60	0.03 grain/dscf *
Diesel Fire Pump	F-pump1	0.03 grain/dscf *
cooling towers	CWT01-CWT26	0.03 grain/dscf *
Maintenance welding	Maintenance welding	0.03 grain/dscf *

*** PM emissions shall not exceed the above limit for each individual unit**

(b) Pursuant to 326 IAC 6.5-1-2(b)(3), the particulate matter emissions from each natural gas-fired boiler (Boiler1 and Boiler2) shall not exceed 0.01 grains per dry standard cubic foot when combusting natural gas.

D.6.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

SECTION D.7 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 5, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 15-18	1,057	105	918,079	2024*	Bag filter CBF42	02-PEF-03-05
Four (4) HD Mixer Tanks	HD 15-18	634			2024*	Bag filter CBF29	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 9-10	792			2024*	Bag filter CBF35	02-PEF-03-05
One (1) Binder Booth	Binder booth 5	528			2024*	Bag filter CBF40	02-PEF-03-05
Four (4) Cathode Silos	Cathode silo 15-18	1,057			2024*	Bag filter CBF34	02-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 15-18	528			2024*	Bag filter CBF34	02-PEF-03-05
Two (2) Binder Mixers tanks	Binder Mixer 9-10	528			2024*	Bag filter CBF28	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 15-18	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Emf Buffer Tank	EMFBT 15-18	528			2024*		
Seven (7) Storage Tanks	ST 29-35	528			2024*		
One (1) Coater Buffer Tank	CBT 5	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 6, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 19-21	1057	105	918,079	2024*	Bag filter CBF44	02-PEF-03-05
Three (3) HD Mixer Tanks	HD 19-21	634			2024*	Bag filter CBF30	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 11-12	792			2024*	Bag filter CBF37	02-PEF-03-05
One (1) Binder Booth	Binder Booth 6	528			2024*	Bag filter CBF45	02-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 19-21	1057			2024*	Bag filter CBF36	02-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 19-21	528			2024*	Bag filter CBF36	02-PEF-03-05
Two (2) Binder Mixers	Binder Mixer 11-12	528			2024*	Bag filter CBF28	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Binder Storage Tanks	BST 21-24	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	
Three (3) Emf Buffer Tank	EMFBT 19-21	528			2024*		
Seven (7) Storage Tanks	ST 36-42	528			2024*		
One (1) Coater Buffer Tank	CBT 6	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 7, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Four (4) Cathode Inlet Tanks	Cathode Inlet 22-25	1057	105	918,079	2024*	Bag filter CBF46	02-PEF-03-05
Four (4) HD Mixer Tanks	HD 22-25	634			2024*	Bag filter CBF32	02-PEF-03-05

						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 13-14	792			2024*	Bag filter CBF39	02-PEF-03-05
One (1) Binder Booth	Binder booth 7	528			2024*	Bag filter CBF47	02-PEF-03-05
Four (4) Cathode Silos	Cathode silo 22-25	1057			2024*	Bag filter CBF38	02-PEF-03-05
Four (4) Cathode Mixer Hoppers	CMH 22-25	528			2024*	Bag filter CBF38	02-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 13-14	528			2024*	Bag filter CBF31	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 25-28	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Four (4) Emf Buffer Tank	EMFBT 22-25	528			2024*		
Seven (7) Storage Tanks	ST 43-49	528			2024*		
One (1) Coater Buffer Tank	CBT 7	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 8, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	Control	Stacks***
Three (3) Cathode Inlet Tanks	Cathode Inlet 26-28	1057	105	918,079	2024*	Bag filter CBF48	02-PEF-03-05
Three (3) HD Mixer Tanks	HD 26-28	634			2024*	Bag filter CBF33	02-PEF-03-05
						CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Two (2) Binder Silos	Binder Silo 15-16	792			2024*	Bag filter CBF41	02-PEF-03-05

One (1) Binder Booth	Binder Booth 8	528			2024*	Bag filter CBF49	02-PEF-03-05
Three (3) Cathode Silos	Cathode Silo 26-28	1057			2024*	Bag filter CBF43	02-PEF-03-05
Three (3) Cathode Mixer Hoppers	CMH 26-28	528			2024*	Bag filter CBF43	02-PEF-03-05
Two (2) Binder Mixes	Binder Mixer 15-16	528			2024*	Bag filter CBF31	02-PEF-03-05
Four (4) Binder Storage Tanks	BST 29-32	528			2024*	CAT-09a, CAT-09b and CAT-09c Standby	S-9a, S-9b, and S-9c Standby
Three (3) Emf Buffer Tank	EMFBT 26-28	528			2024*		
Seven (7) Storage Tanks	ST 50-56	528			2024*		
One (1) Coater Buffer Tank	CBT 8	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-03-05 refers to a group of stacks consisting of 02-PEF-03, 02-PEF-04 and 02-PEF-05**

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction, using Activated Carbon Towers (CAT-10a, CAT-10b, CAT-10c, CAT-10d, & CAT-10e Standby) for VOC/HAP control, exhausting to stack (S-10a, S-10b, S-10c, S-10d, and 10-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as Tanks NMPST 5 and NMPST 6; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 7 and NMPST 8.

Under 40 CFR 63, Subpart CCCCCCC, the NMP Storage Tanks associated with the cathode raw material handling and mixing line is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.7.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	PM Limit (lbs/hour)	PM10 Limit (lbs/hour)	PM2.5 Limit (lbs/hour)
Cline5 to Cline8	02-PEF-03, 02-PEF-04 and 02-PEF-05	5.46	5.46	5.46

***** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.**

Compliance with these limits, combined with the potential to emit PM, PM_{10}, and $PM_{2.5}$ from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM_{10}, and $PM_{2.5}$ to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.7.2 Hazardous Air Pollutant (HAP) Minor Limits [40 CFR 63]

In order to render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA), the Permittee shall comply with the following:

(a) The Nickel and Cobalt emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	Nickel Limit* (lbs/hour)	Cobalt Limit** (lbs/hour)
Cline5 to Cline8	02-PEF-03, 02-PEF-04 and 02-PEF-05	1.13	0.59

*** Nickel refers to Nickel and Nickel compounds**
**** Cobalt refers to Cobalt and Cobalt compounds**
***** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.**

Compliance with these limits, combined with the potential to emit HAP from all other emission units at the source, shall limit the source-wide potential to emit single HAP to less than 10 tons per twelve (12) consecutive month period and the source-wide potential to emit total HAPs to less than 25 tons per twelve (12) consecutive month period, and shall render the source an area source of HAP emissions under Section 112 of the Clean Air Act (CAA).

D.7.3 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Cathode Inlet Tanks	Cathode Inlet 15 - Cathode Inlet 28	0.03 grain/dscf *
HD Tanks	HD 15- HD 28	0.03 grain/dscf *
Binder Silos	Binder Silo9- Binder Silo16	0.03 grain/dscf *
Binder Booth	Binder booth 5- Binder booth 8	0.03 grain/dscf *
Cathode Silos	Cathode silo 15- Cathode silo 28	0.03 grain/dscf *
Cathode Mixer Hoppers	CMH 15- CMH 28	0.03 grain/dscf *
Binder Mixes	Binder Mixer 9- Binder Mixer 16	0.03 grain/dscf *

*** PM emissions shall not exceed the above limit for each individual unit**

D.7.4 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.7.5 Particulate and HAP Control

(a) In order to assure compliance with Conditions D.7.1, D.7.2, and D.7.3, the bag filters for particulate and HAP control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit/Process Name	Unit ID	Bag Filter ID
Cathode Inlet Tanks	Cathode Inlet 15 - Cathode Inlet 18	CBF42
	Cathode Inlet 19 - Cathode Inlet 21	CBF44
	Cathode Inlet 22 - Cathode Inlet 25	CBF46
	Cathode Inlet 26 - Cathode Inlet 28	CBF48
HD Tanks	HD 15 - HD 18	CBF29
	HD 19 - HD 21	CBF30
	HD 22 - HD 25	CBF32
	HD 26 - HD 28	CBF33
Binder Silos	Binder Silo9 - Binder Silo10	CBF35
	Binder Silo11 - Binder Silo12	CBF37
	Binder Silo13 - Binder Silo14	CBF39
	Binder Silo15 - Binder Silo16	CBF41
Binder Booth	Binder Booth 5	CBF40
	Binder Booth 6	CBF45
	Binder Booth 7	CBF47
	Binder Booth 8	CBF49
Cathode Silos	Cathode silo 15 - Cathode silo 18	CBF34
	Cathode silo 19 - Cathode silo 21	CBF36
	Cathode silo 22 - Cathode silo 25	CBF38
	Cathode silo 26 - Cathode silo 28	CBF43
Cathode Mixer Hoppers	CMH 15 - CMH 18	CBF34
	CMH 19 - CMH 21	CBF36
	CMH 22 - CMH 25	CBF38
	CMH 26 - CMH 28	CBF43
Binder Mixes	Binder Mixer 9 - Binder Mixer 10	CBF28
	Binder Mixer 11 - Binder Mixer 12	
	Binder Mixer 13 - Binder Mixer 14	CBF31
	Binder Mixer 15 - Binder Mixer 16	

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.7.6 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.7.1, D.7.2, and D.7.3, not later than 180 days after startup of the emission units and associated controls associated with CLine1-CLine4, the Permittee shall perform PM, PM_{10}, $PM_{2.5}$, Nickel, and Cobalt testing on the stack identified as "02-PEF-03, 02-PEF-04 and 02-PEF-05 " utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

(b) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.7.7 Parametric Monitoring - Bag Filters

The Permittee shall record the pressure drop across the bag filters listed in the table below at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a bag filter is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

Bag Filter ID				
CBF28	CBF33	CBF38	CBF43	CBF48
CBF29	CBF34	CBF39	CBF44	CBF49
CBF30	CBF35	CBF40	CBF45	
CBF31	CBF36	CBF41	CBF46	
CBF32	CBF37	CBF42	CBF47	

The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.7.8 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.7.9 Record Keeping Requirement

(a) To document the compliance status with Condition D.7.7, the Permittee shall maintain daily records of the pressure drop for each bag filter. The Permittee shall

include in its daily record when a pressure drop is not taken and the reason for the lack of a pressure drop record (e.g., the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

SECTION D.8 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

(f) One (1) Anode raw material handling and mixing line, identified as Aline5, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks ***
Three (3) PD Mixers	PDM 25-27	608	125	1,091,590	2024 *	Bag filter ABF29	02-PEF-01-02
Three (3) PD Mixers	PDM 28-30	608			2024 *	Bag filter ABF30	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 13-15	528			2024 *	Bag filter ABF28	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 5	792			2024 *	Bag filter ABF47	02-PEF-01-02
One (1) CMC Booth	CMC Booth 5	792			2024 *	Bag filter ABF47	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 9-10	792			2024 *	Bag filter ABF39	02-PEF-01-02
One (1) CMC Silo	CMC Silo 5	792			2024 *	Bag filter ABF 39	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 17--20	1057			2024 *	Bag filter ABF46	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 17-20	1057			2024 *	Bag filter ABF38	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 25-30	528			2024 *	Bag filter ABF38	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 25-30	528			2024 *	NA	Indoor
One (1) Electric Hot water Tank	HWT 5	792			2024 *		
Twelve (12) (PD slurry) Storage Tanks	PDST 49-60	528			2024 *		
Two (2) Coater Buffer Tanks	CBT 9-10	528			2024 *		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02**

(g) One (1) Anode raw material handling and mixing line, identified as Aline6, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 31-33	608	125	1,091,590	2024*	Bag filter ABF31	02-PEF-01-02
Three (3) PD Mixers	PDM 34-36	608			2024*	Bag filter ABF32	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 16-18	528			2024*	Bag filter ABF28	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 6	792			2024*	Bag filter ABF49	02-PEF-01-02
One (1) CMC Booth	CMC Booth 6	792			2024*	Bag filter ABF49	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 11-12	792			2024*	Bag filter ABF41	02-PEF-01-02
One (1) CMC Silo	CMC Silo 6	792			2024*	Bag filter ABF 41	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 21-24	1057			2024*	Bag filter ABF48	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 21-24	1057			2024*	Bag filter ABF40	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 31-36	528			2024*	Bag filter ABF40	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 31-36	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 6	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 61-72	528			2024*		
Two (2) Coater Buffer Tanks	CBT 11-12	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02**

(h) One (1) Anode raw material handling and mixing line, identified as ALine 7, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 37-39	608	125	1,091,590	2024*	Bag filter ABF34	02-PEF-01-02
Three (3) PD Mixers	PDM 40-42	608			2024*	Bag filter ABF35	02-PEF-01-02
Three (3) CMC Mixers	CMC Mixer 19-21	528			2024*	Bag filter ABF33	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 7	792			2024*	Bag filter ABF51	02-PEF-01-02
One (1) CMC Booth	CMC Booth 7	792			2024*	Bag filter ABF51	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 13-14	792			2024*	Bag filter ABF43	02-PEF-01-02
One (1) CMC Silo	CMC Silo 7	792			2024*	Bag filter ABF43	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 25-28	1057			2024*	Bag filter ABF50	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 25-28	1057			2024*	Bag filter ABF42	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 37-42	528			2024*	Bag filter ABF42	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 37-42	528			2024*	NA	Indoor
One (1) Electric Hot water Tank	HWT 7	792			2024*		
Twelve (12) (PD slurry) Storage Tanks	PDST 73-84	528			2024*		
Two (2) Coater Buffer Tanks	CBT 13-14	528			2024*		

*** Year approved for construction**
**** Each individual tank/booth/silo/hopper has the listed capacity**
***** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02**

(I) One (1) Anode raw material handling and mixing line, identified as ALine 8, approved in 2024 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Maximum Throughput (gal/hr)	Maximum Throughput (gal/yr)	Year	PM Control	Stacks***
Three (3) PD Mixers	PDM 43-45	608	125	1,091,590	2024*	Bag filter ABF36	02-PEF-01-02
Three (3) PD Mixers	PDM 46-48	608			2024*	Bag filter ABF37	02-PEF-01-02

Three (3) CMC Mixers	CMC Mixer 22-24	528			2024 *	Bag filter ABF33	02-PEF-01-02
One (1) Anode Conductive Powder Booth	ACPB 8	608			2024 *	Bag filter ABF53	02-PEF-01-02
One (1) CMC Booth	CMC Booth 8	608			2024 *	Bag filter ABF53	02-PEF-01-02
Two (2) Anode Conductive Powder Silos	ACPS 15-16	528			2024 *	Bag filter ABF45	02-PEF-01-02
One (1) CMC Silo	CMC Silo 8	608			2024 *	Bag filter ABF 45	02-PEF-01-02
Four (4) Anode Inlets	Anode Inlet 29-32	608			2024 *	Bag filter ABF52	02-PEF-01-02
Four (4) Anode Silos	Anode Silo 29-32	528			2024 *	Bag filter ABF44	02-PEF-01-02
Six (6) Anode Mixer Hoppers	AMH 43-48	528			2024 *	Bag filter ABF44	02-PEF-01-02
Six (6) CMC Storage Tanks	CMCST 43-48	528			2024 *	NA	Indoor
One (1) Electric Hot water Tank	HWT 8	792			2024 *		
Twelve (12) (PD slurry) Storage Tanks	PDST 85-96	528			2024 *		
Two (2) Coater Buffer Tanks	CBT 15-16	528			2024 *		

*** Year approved for construction**
**** Per individual unit**
***** 02-PEF-01-02 refers to a group of stacks consisting of 02-PEF-01 and 02-PEF-02**
(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.8.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The PM, PM10, and PM2.5 emissions from the units named in the table below shall not exceed the values shown in the table:

Process	Stacks***	PM Limit (lbs/hour)	PM10 Limit (lbs/hour)	PM2.5 Limit (lbs/hour)
Aline5 to Aline8	02-PEF-01 and 02-PEF-02	8.75	8.75	8.75

***** The limit is a combined limit and as such no combination of stacks may emit a total greater than that listed.**

Compliance with these limits, combined with the potential to emit PM, PM_{10}, and $PM_{2.5}$ from all other emission units at this source, shall limit the source-wide total potential to emit of PM, PM_{10}, and $PM_{2.5}$ to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.8.2 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
PD Mixers	PDM 25- PDM 48	0.03 grain/dscf *
CMC Mixers	CMC Mixer 13- CMC Mixer 24	0.03 grain/dscf *
Anode Conductive Powder Booth	ACPB 5- ACPB 8	0.03 grain/dscf *
CMC Booth	CMC Booth 5- CMC Booth 8	0.03 grain/dscf *
Anode Conductive Powder Silos	ACPS 9- ACPS 16	0.03 grain/dscf *
CMC Silo	CMC Silo 5- CMC Silo 8	0.03 grain/dscf *
Anode Inlets	Anode Inlet 17- Anode Inlet 32	0.03 grain/dscf *
Anode Silos	Anode Silo 17- Anode Silo 32	0.03 grain/dscf *
Anode Mixer Hoppers	AMH25-AMH48	0.03 grain/dscf *

*** PM emissions shall not exceed the above limit for each individual unit**

D.8.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.8.4 Particulate Control

(a) In order to assure compliance with Conditions D.8.1, and D.8.2, the bag filters for particulate control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit/Process Name	Unit ID	Bag Filter ID
PD Mixers	PDM 25 - PDM 27	ABF29
	PDM 28 - PDM 30	ABF30
	PDM 31 - PDM 33	ABF31
	PDM 34 - PDM 36	ABF32
	PDM 37 - PDM 39	ABF34
	PDM 40 - PDM 42	ABF35
	PDM 43 - PDM 45	ABF36
	PDM 46 - PDM 48	ABF37
CMC Mixers	CMC Mixer 13 - CMC Mixer 15	ABF28
	CMC Mixer 16 - CMC Mixer 18	
	CMC Mixer 19 - CMC Mixer 21	ABF33
	CMC Mixer 22 - CMC Mixer 24	
Anode Conductive Powder Booth	ACPB 5	ABF47
	ACPB 6	ABF49
	ACPB 7	ABF51
	ACPB 8	ABF53
CMC Booth	CMC Booth 5	ABF47
	CMC Booth 6	ABF49
	CMC Booth 7	ABF51
	CMC Booth 8	ABF53
Anode Conductive	ACPS 9-10	ABF39

Unit/Process Name	Unit ID	Bag Filter ID
Powder Silos	ACPS 11-12	ABF41
	ACPS 13-14	ABF43
	ACPS 15-16	ABF45
CMC Silo	CMC Silo 5	ABF39
	CMC Silo 6	ABF41
	CMC Silo 7	ABF43
	CMC Silo 8	ABF45
Anode Inlets	Anode Inlet 17-20	ABF46
	Anode Inlet 21-24	ABF48
	Anode Inlet 25-28	ABF50
	Anode Inlet 29-32	ABF52
Anode Silos	Anode Silo 17-20	ABF38
	Anode Silo 21-24	ABF40
	Anode Silo 25-28	ABF42
	Anode Silo 29-32	ABF44
Anode Mixer Hoppers	AMH 25-30	ABF38
	AMH 31-36	ABF40
	AMH 37-42	ABF42
	AMH 43-48	ABF44

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.8.5 Testing Requirements [326 IAC 2-1.1-11]

(a) In order to demonstrate compliance with Conditions D.8.1 and D.8.2, not later than 180 days after startup of the emission units and associated controls associated with ALine5 to ALine8, the Permittee shall perform PM, PM_{10}, and $PM_{2.5}$, testing of the stack identified as "02-PEF-01-02" utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. PM_{10} and $PM_{2.5}$ includes filterable and condensable PM.

(b) Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.8.6 Parametric Monitoring - Bag Filters

The Permittee shall record the pressure drop across the bag filters listed in the table below at least once per day when the associated emissions unit is in operation. When, for any one reading, the pressure drop across a bag filter is outside the normal range, the Permittee shall take a reasonable response. The normal range for this unit is a pressure drop between 2.0 and 8.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

Bag Filter ID						
ABF28	ABF32	ABF36	ABF40	ABF44	ABF48	ABF52
ABF29	ABF33	ABF37	ABF41	ABF45	ABF49	ABF53
ABF30	ABF34	ABF38	ABF42	ABF46	ABF50	
ABF31	ABF35	ABF39	ABF43	ABF47	ABF51	

The instruments used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated or replaced at least once every six (6) months.

D.8.7 Broken or Failed Bag Detection

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the line. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.8.8 Record Keeping Requirement

(a) To document the compliance status with Condition D.8.6, the Permittee shall maintain daily records of the pressure drop for each bag filter. The Permittee shall include in its daily record when a pressure drop is not taken and the reason for the lack of a pressure drop record (e.g., the process did not operate that day).

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

SECTION D.9 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

(j) Cathode coating process, consisting of the following:

(1) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat5, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-05, exhausting to stack SR-05.

(2) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat6, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-06, exhausting to stack SR-06.

(3) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat7, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-07, exhausting to stack SR-07.

(4) One (1) cathode coating machine, consisting of coaters and electric dryers, identified as C-coat8, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and emissions controlled by an integral NMP solvent recovery tower, identified as SRT-08, exhausting to stack SR-08.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.9.1 PSD Minor Limits [326 IAC 2-2]

In order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall comply with the following:

(a) The controlled VOC emissions from each coating line C-coat5, C-coat6, C-coat7 and C-coat8, shall be less than 4.66 lb/hr, each.

Compliance with these limits, combined with the potential to emit VOC from all other emission units at this source, shall limit the source-wide total potential to emit of VOC to less than 250 tons per twelve (12) consecutive month period, each, and shall render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.9.2 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the Permittee shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from each of the four coating lines, identified as C-coat5, C-coat6, C-coat7 and C-coat8.

D.9.3 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.9.4 VOC Control

In order to ensure compliance with Conditions D.9.1 and D.9.2, the integral Solvent Recovery towers, identified as SRT-05 to SRT-08, shall be in operation and control emissions from each coating line, identified as C-coat5, C-coat6, C-coat7 and C-coat8 at all times when the coating lines are in operation.

D.9.5 Testing Requirements [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.9.1 and D.9.2, not later than 180 days after startup of the coating line, identified as C-coat5, C-coat6, C-coat7 and C-coat8, the Permittee shall perform VOC testing (including emission rate, overall destruction efficiency, and overall capture efficiency) on one (1) of the associated integral Solvent recovery tower (SRT-05 or SRT-06 or SRT-07 or SRT-08) with testing alternated between SRT05 ,SRT06, SRT-07 and SRT08 utilizing methods approved by the commissioner at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall alternate between SRT05, SRT06, SRT-07 and SRT08 for each test cycle, such that testing on a Solvent Recovery tower shall not be repeated until SRT05, SRT06, SRT-07 and SRT08 have each been tested.

Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

D.9.6 Volatile Organic Compounds (VOC) [326 IAC 8-1-2]

(a) Pursuant to 326 IAC 8-1-2(b), the VOC emissions shall be limited to no greater than the equivalent emissions, expressed as pounds of VOC per gallon of coating solids, allowed under the applicable emission limitation contained in D.9.2. Equivalency shall be determined by the following equation:

E = L / (1 - (L/D))

Where:

E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied

L = Applicable emission limit in pounds of VOC per gallon of coating. 2.6 pounds of VOC per gallon less water

D = Baseline solvent density of VOC in coating and shall be equal to 7.36 pounds per gallon of solvent;

A solvent density of 7.36 pounds of VOC per gallon of coating shall be used to determine equivalent pounds of VOC per gallon of solids for the applicable emission limit contained in this article.

(b) The pounds of VOC per gallon of coating solids shall be limited to less than 4.02 pounds per gallon of solids.

(c) Pursuant to 326 IAC 8-1-2(c), the overall efficiency of the capture system and control device shall be no less than the equivalent calculated by the following equation:

O = (V - E) / V * 100

Where:

O = Equivalent overall efficiency of the capture system and control device as a percentage.
V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied.
E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied (4.02 pounds of VOC per gallon of solids).

The overall efficiency of the integral Solvent recovery tower (SRT05 -SRT08) shall be greater than 95.0%.

D.9.7 Volatile Organic Compounds (VOC)[326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Conditions D.9.1 and D.9.2 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the "as supplied" and "as applied" VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)][326 IAC 2-7-6(1)]

D.9.8 Solvent Recovery Tower Monitoring

(a) In order to ensure compliance with Conditions D.9.1 and D.9.2, a continuous monitoring system shall be calibrated, maintained, and operated on each of the integral Solvent Recovery Towers, SRT05-SRT08, for measuring coolant exit temperature. For purposes of this condition continuous shall mean temperature measurement no less often than once per fifteen (15) minutes. The output of this system shall be recorded as a three (3) hour average. The integral Solvent Recovery Towers, (SRT05-SRT08) shall be operated at the 3-hour average temperature which shall be recommended by the manufacturer.

(b) On and after the date the stack test results are available, the Permittee shall ensure that coolant exit temperatures of the integral Solvent Recovery Towers shall be at or below the coolant exit temperatures as observed during the latest complaint stack test. The minimum specified temperature is the three (3) hour average temperature

(c) The Permittee shall monitor and record water flow rate at each integral Solvent Recovery Tower, (SRT05-SRT08) at least once per day. The integral Solvent Recovery Tower, (SRT05-SRT08) shall be operated at a water flow rate which shall be recommended by the manufacturer.

(d) The Permittee shall monitor and record the pressure drop across the fan for each integral Solvent Recovery Tower (SRT05-SRT08) at least once per day. The

integral Solvent Recovery Tower, (SRT05-SRT08) shall be operated at a pressure drop across the fan which shall be recommended by the manufacturer.

If a condition exists which should result in a response, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response required by this condition. Failure to take a reasonable response shall be considered a deviation from this permit.

D.9.9 Solvent Recovery Tower Outlet Monitoring

(a) The Permittee shall monitor and record the outlet VOC concentration (ppm by volume as propane) of each of the integral Solvent Recovery Tower, (SRT05-SRT08) exhaust when any coating line, identified as C-coat5, C-coat6, C-coat7 and C-coat8is in operation at least once per day.

(b) The Permittee shall operate the integral Solvent Recovery Tower, (SRT05-SRT08) at or below the average concentration as based on manufacturer specification.

(c) If the concentration rises above the above-mentioned average concentration, the Permittee shall take a reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.9.10 Record Keeping Requirement

(a) In order to document the compliance status with Condition D.9.8(a) and D.9.8(b), the Permittee shall maintain continuous temperature records (on a 3-hour average basis) for the coolant exiting through each integral Solvent Recovery tower and the 3-hour average temperature used to demonstrate compliance during the most recent compliant stack test. The Permittee shall include in its records when the continuous temperature records were not taken and the reason for the lack of continuous temperature records (e.g. the process did not operate that day).

(b) To document the compliance status with Condition D.9.8(c), the Permittee shall maintain daily records of the water flow rate at each integral Solvent Recovery Tower, (SRT05-SRT08). The Permittee shall include in its daily records when a reading is not taken and the reason for the lack of water flow rate reading (e.g., the process did not operate that day).

(c) To document the compliance status with Condition D.9.8(d), the Permittee shall maintain daily records of the record the pressure drop across the fan for each integral Solvent Recovery Tower, (SRT05-SRT08). The Permittee shall include in its daily records when a pressure reading is not taken and the reason for the lack of the pressure reading (e.g., the process did not operate that day).

(d) To document the compliance status with Condition D.9.9, the Permittee shall maintain records of the daily VOC monitoring for each integral Solvent Recovery Tower, (SRT05-SRT08). The Permittee shall include in its daily records when a outlet concentration reading is not taken and the reason for the lack of the outlet concentration reading (e.g., the process did not operate that day).

(e) Section C - General Record Keeping Requirements, contains the Permittee's obligations with regard to the records required by this condition.

SECTION D.10 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:
(k) Anode coating process, consisting of the following:

(1) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat5, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, uncontrolled, and vented to the outdoor atmosphere.

(2) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat6, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(3) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat7, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(4) One (1) anode coating machine, consisting of coaters and electric dryers, identified as A-coat8, approved in 2024 for construction, with maximum capacity of 387,500 square inches per minute of coil, and uncontrolled, and vented to the outdoor atmosphere.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.10.1 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the Permittee shall not cause, allow or permit the discharge into the atmosphere of any volatile organic compounds in excess of 2.6 pounds per gallon excluding water from each of the four coating lines, identified as A-coat5, A-coat6, A-coat7 and A-coat8.

D.10.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.10.3 Volatile Organic Compounds [326 IAC 8-1-2] [326 IAC 8-1-4]

Compliance with the VOC content and usage limitations contained in Condition D.10.1 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing or obtaining from the manufacturer the copies of the "as supplied" and "as applied" VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-19]

D.10.4 Record Keeping Requirement

(a) To document the compliance status with Condition D.10.1, the Permittee shall maintain records in accordance with (1) through (2) below. Records maintained for (1) through (2) shall be taken as stated below and shall be complete and sufficient to establish compliance with the VOC usage limits established in Condition D.10.1.

(1) The VOC content of each coating material and solvent used less water.

(2) The amount of each coating material and solvent used on monthly basis.

(A) Records shall include purchase orders, invoices, and safety data sheets (SDS) necessary to verify the type and amount used.

(B) Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents.

(b) Section C - General Record Keeping Requirements contains the Permittee's obligation with regard to the records required by this condition.

SECTION D.11 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

(l) Anode slitting process, consisting of the following:

(1) One (1) Anode slitter, identified as AS5, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF17- ASBF20), and exhausting to stack (02-DCEF-1).

(2) One (1) Anode slitter, identified as AS6, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF21- ASBF24), and exhausting to stack (02-DCEF-1).

(3) One (1) Anode slitter, identified as AS7, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF25-ASBF28), and exhausting to stack (02-DCEF-1).

(4) One (1) Anode slitter, identified as AS8, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (ASBF29- ASBF32), and exhausting to stack (02-DCEF-1).

(m) Cathode slitting process, consisting of the following:

(1) One (1) Cathode slitter, identified as CS5, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF17- CSBF20), and exhausting to stack (02-DCEF-2).

(2) One (1) Cathode slitter, identified as CS6, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF21- CSBF24), and exhausting to stack (02-DCEF-2).

(3) One (1) Cathode slitter, identified as CS7, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF25- CSBF28), and exhausting to stack (02-DCEF-2).

(4) One (1) Cathode slitter, identified as CS8, approved for construction in 2024, with maximum capacity 3,937 inches per minute, controlled by four bag filters (CSBF29- CSBF32), and exhausting to stack (02-DCEF-2).

(n) One (1) Assembly process, consisting of the following:

(1) Four (4) Stacking Lines, consisting of the following:

Line 5

(A) Thirty-two (32) stackers, identified as S5_1 to S5_32, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S5_BF1 to S5_BF32) respectively, exhausting to stack (02-DCEF-3).

Line 6

(B) Thirty-two (32) stackers, identified as S6_1 to S6_32, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and

each controlled by a bag filter (S4_BF1 to S4_BF32) respectively, exhausting to stack (02-DCEF-4).

Line 7

(C) Twenty-five (25) stackers, identified as S7_1 to S7_25, approved in 2024 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S7_BF1 to S7_BF25) respectively, exhausting to stack (02-DCEF-5).

Line 8

(D) Twenty-five (25) stackers, identified as S8_1 to S8_25, approved in 2023 for construction, with a maximum throughput of 897 cells/hr, total, and each controlled by a bag filter (S8_BF1 to S8_BF25) respectively, exhausting to stack (02-DCEF-6).

(2) Four (4) LPW lines, consisting of the following:

Line 5

(A) Two (2) LPW welding, identified as LPW5-1 to LPW5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF9 to LPWBF10) respectively, exhausting to stack (02-DCEF-7)

Line 6

(B) Two (2) LPW welding, identified as LPW6-1 to LPW6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF11 to LPWBF12) respectively, exhausting to stack (02-DCEF-7)

Line 7

(C) Two (2) LPW welding, identified as LPW7-1 to LPW7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF13 to LPWBF14) respectively, exhausting to stack (02-DCEF-7)

Line 8

(D) Two (2) LPW welding, identified as LPW8-1 to LPW8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (LPWBF15 to LPWBF16) respectively, exhausting to stack (02-DCEF-7)

(3) Four (4) CanCap Welding lines, consisting of the following:

Line 5

(A) Two (2) CanCap welding, identified as CanCap5-1 to CANCAP5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF9 to CANCAPBF10) respectively, exhausting to stack (02-DCEF-8).

Line 6

(B) Two (2) CanCap welding, identified as CANCAP6-1 to CANCAP6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF11 to CANCAPBF12) respectively, exhausting to stack (02-DCEF-8).

Line 7

(C) Two (2) CanCap welding, identified as CANCAP7-1 to CANCAP7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF13 to CANCAPBF14) respectively, exhausting to stack (02-DCEF-8).

Line 8

(D) Two (2) CanCap welding, identified as CANCAP8-1 to CANCAP8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (CANCAPBF15 to CANCAPBF16) respectively, exhausting to stack (02-DCEF-8).

(4) Four (4) electrolyte filling processes, identified as E-Filling, dispensing electrolyte via nozzles into the battery cells, approved for construction in 2024, using Activated Carbon Towers (CAT-04a, CAT-04, CAT-04c, CAT-04d, & CAT-04e Standby) for VOC/HAP control, exhausting to stack (S-4a, S-4b, S-4c, S-4d, and S-4e Standby), consisting of the following:

Line 5

(A) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 6

(B) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 7

(C) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

Line 8

(D) Eight (8) electrolyte filling machines, dispensing electrolyte via nozzles into the battery cells, with a maximum throughput of 897 cells per hour, total.

(o) One (1) formation process, identified as Formation, approved in 2024 for construction, using Activated Carbon Towers (CAT-11a, CAT-11b, CAT-11c, CAT-11d, & CAT-11e Standby) for VOC/HAP control, exhausting to stack (S-11a, S-11b, S-11c, S-11d, and S-11e Standby).

(1) One (1) taping process, with a combined maximum process capacity of 3,588 cells per hour, total, consisting of the following:

(A) One (1) taping machine, identified as TM-9, approved in 2024 for construction, controlled by bag filters (TMBF33-TMBF36), exhausting through general exhaust stack 03-EF-301-302.

(B) One (1) taping machine, identified as TM-10, approved in 2024 for construction, controlled by bag filters (TMBF37-TMBF40), exhausting through general exhaust stack 03-EF-301-302.

(C) One (1) taping machine, identified as TM-11, approved in 2023 for construction, controlled by bag filters (TMBF41-TMBF44), exhausting through general exhaust stack 03-EF-301-302.

(D) One (1) taping machine, identified as TM-12, approved in 2024 for construction, controlled by bag filters (TMBF45-TMBF48), exhausting through general exhaust stack 03-EF-301-302.

(E) One (1) taping machine, identified as TM-13, approved in 2024 for construction, controlled by bag filters (TMBF49-TMBF52), exhausting through general exhaust stack 03-EF-301-302.

(F) One (1) taping machine, identified as TM-14, approved in 2024 for construction, controlled by bag filters (TMBF53-TMBF56), exhausting through general exhaust stack 03-EF-301-302.

(G) One (1) taping machine, identified as TM-15, approved in 2024 for construction, controlled by bag filters (TMBF57-TMBF60), exhausting through general exhaust stack 03-EF-301-302.

(H) One (1) taping machine, identified as TM-16, approved in 2024 for construction, controlled by bag filters (TMBF61-TMBF64), exhausting through general exhaust stack 03-EF-301-302.

(2) Four (4) SealPin Welding lines, consisting of the following

Line 5

(A) Two (2) seal pin welding, identified as SPW5-1 to SPW5-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (SPWBF5), exhausting through general exhaust stack 03-EF-301-302.

Line 6

(B) Two (2) seal pin welding, identified as SPW6-1 to SPW6-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF6) respectively, exhausting through general exhaust stack 03-EF-301-302.

Line 7

(C) Two (2) seal pin welding, identified as SPW7-1 to SPW7-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF7) respectively, exhausting through general exhaust stack 03-EF-301-302.

Line 8

(D) Two (2) seal pin welding, identified as SPW8-1 to SPW8-2, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and each controlled by a bag filter (SPWBF8) respectively, exhausting to through general exhaust stack 03-EF-301-302.

(3) Four (4) HVC Front Side Moving Device, identified as HVC5-HVC8, approved in 2024 for construction, with a combined maximum capacity of 3,588 cells/hr, and Activated Carbon Towers (CAT-11a, CAT-11b, CAT-11c, CAT-11d, & CAT-11e Standby) for VOC/HAP control, exhausting to stack (S-11a, S-11b, S-11c, S-11d, and S-11e Standby

(p) One (1) module process, identified as Module, approved in 2024 for construction, and consisting of the following:

Line 5

(1) One (1) frame side welding, identified as FSW5, approved in 2024 for construction, with a maximum capacity of 897cells/hr, total, and controlled by a bag filter (MBF13), exhausting through general exhaust stack 03-EF-301-302.

(2) One (1) busbar welding, identified as BW5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MB14), exhausting through general exhaust stack 03-EF-301-302.

(3) One (1) side dispenser, identified as SD5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(4) One (1) HBB dispenser, identified as HBB5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(5) Two (2) PSA dispensers, identified as PSA9-PSA10, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(6) Two (2) curing stations, identified as CS9-CS10, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(7) One (1) Frame end welding, identified as FEW5, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF21), exhausting through general exhaust stack 03-EF-301-302

Line 6

(8) One (1) frame side welding, identified as FSW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF15), exhausting through general exhaust stack 03-EF-301-302.

(9) One (1) busbar welding, identified as BW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF16), exhausting through general exhaust stack 03-EF-301-302.

(10) One (1) side dispenser, identified as SD6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(11) One (1) HBB dispenser, identified as HBB6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(12) Two (2) PSA dispensers, identified as PSA11-PSA12, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(13) Two (2) curing stations, identified as CS11-CS12, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(14) One (1) Frame end welding, identified as FEW6, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF22), exhausting through general exhaust stack 03-EF-301-302.

Line 7

(15) One (1) frame side welding, identified as FSW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF17), exhausting through general exhaust stack 03-EF-301-302.

(16) One (1) busbar welding, identified as BW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF18), exhausting through general exhaust stack 03-EF-301-302.

(17) One (1) side dispenser, identified as SD7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(18) One (1) HBB dispenser, identified as HBB7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(19) Two (2) PSA dispensers, identified as PSA13-PSA14, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(20) Two (2) curing stations, identified as CS13-CS14, approved in 20243 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(21) One (1) Frame end welding, identified as FEW7, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF23), exhausting through general exhaust stack 03-EF-301-302.

Line 8

(22) One (1) frame side welding, identified as FSW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF19), exhausting through general exhaust stack 03-EF-301-302.

(23) One (1) busbar welding, identified as BW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF20), exhausting through general exhaust stack 03-EF-301-302.

(24) One (1) side dispenser, identified as SD8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(25) One (1) HBB dispenser, identified as HBB8, approved in 2023 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(26) Two (2) PSA dispensers, identified as PSA15-PSA16, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(27) Two (2) curing stations, identified as CS13-CS14, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, uncontrolled and venting indoor.

(28) One (1) Frame end welding, identified as FEW8, approved in 2024 for construction, with a maximum capacity of 897 cells/hr, total, and controlled by a bag filter (MBF24), exhausting through general exhaust stack 03-EF-301-302.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.11.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Anode Slitters	AS5-AS8	0.03 grain/dscf *
Cathode Slitters	CS5-CS8	0.03 grain/dscf *
Stackers	S5_1 to S5_32	0.03 grain/dscf *
	S6_1 to S6_32	
	S7_1 to S7_25	
	S8_1 to S8_25	
LPW welding	LPW5-1 to LPW5-2	0.03 grain/dscf *
	LPW6-1 to LPW6-2	
	LPW7-1 to LPW7-2	
	LPW8-1 to LPW8-2	
CanCap welding	CanCap5-1 to CanCap5-2	0.03 grain/dscf *
	CanCap6-1 to CanCap6-2	
	CanCap7-1 to CanCap7-2	
	CanCap8-1 to CanCap8-2	
seal pin welding	SPW5-1 to SPW5-2	0.03 grain/dscf *
	SPW6-1 to SPW6-2	
Taping machines	SPW7-1 to SPW7-2	0.03 grain/dscf *
frame side welding	SPW8-1 to SPW8-2	0.03 grain/dscf *
busbar welding	TM9-TM16	0.03 grain/dscf *
Frame end welding	FSW5-FSW8	0.03 grain/dscf *

*** PM emissions shall not exceed the above limit for each individual unit**

D.11.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements [326 IAC 2-7-5(1)]

D.11.3 Particulate Control

(a) In order to assure compliance with Condition D.11.1, the bag filters for particulate control shall be in operation and control emissions from the emission units listed below at all times that the emission units listed below are in operation:

Unit Description	Unit ID	Control
Anode slitter	AS5	ASBF17- ASBF20
Anode slitter	AS6	ASBF21- ASBF24
Anode slitter	AS7	ASBF25-ASBF28

Unit Description	Unit ID	Control
Anode slitter	AS8	ASBF29- ASBF32
Cathode slitter	CS5	CSBF17- CSBF20
Cathode slitter	CS6	CSBF21- CSBF24
Cathode slitter	CS7	CSBF25- CSBF28
Cathode slitter	CS8	CSBF29- CSBF32
stackers	S5_1 to S5_32	S5_BF1 to S5_BF32
stackers	S6_1 to S6_32	S6_BF1 to S6_BF32
stackers	S7_1 to S7_25	S7_BF1 to S7_BF25
stackers	S8_1 to S8_25	S8_BF1 to S8_BF25
LPW welding	LPW5-1 to LPW5-2	LPWBF9 to LPWBF10
LPW welding	LPW6-1 to LPW6-2	LPWBF11 to LPWBF12
LPW welding	LPW7-1 to LPW7-2	LPWBF13 to LPWBF14
LPW welding	LPW8-1 to LPW8-2	LPWBF15 to LPWBF16
CanCap welding	CANCAP5-1 to CANCAP5-2	CANCAPBF9 to CANCAPBF10
CanCap welding	CANCAP6-1 to CANCAP6-2	CANCAPBF11 to CANCAPBF12
CanCap welding	CANCAP7-1 to CANCAP7-2	CANCAPBF13 to CANCAPBF14
CanCap welding	CANCAP8-1 to CANCAP8-2	CANCAPBF15 to CANCAPBF16
taping machine	TM-9	TMBF33-TMBF36
taping machine	TM-10	TMBF37-TMBF40
taping machine	TM-11	TMBF41-TMBF44
taping machine	TM-12	TMBF45-TMBF48
taping machine	TM-13	TMBF49-TMBF52
taping machine	TM-14	TMBF53-TMBF56
taping machine	TM-15	TMBF57-TMBF60
taping machine	TM-16	TMBF61-TMBF64
seal pin welding	SPW5-1 to SPW5-2	SPWBF5
seal pin welding	SPW6-1 to SPW6-2	SPWBF6
seal pin welding	SPW7-1 to SPW7-2	SPWBF7
seal pin welding	SPW8-1 to SPW8-2	SPWBF8
frame side welding	FSW5	MBF13
busbar welding	BW5	MBF14
frame side welding	FSW6	MBF15
busbar welding	BW6	MBF16
frame side welding	FSW7	MBF17
busbar welding	BW7	MBF18
frame side welding	FSW8	MBF19
busbar welding	BW8	MBF20
Frame end welding	FEW5	MBF21
Frame end welding	FEW6	MBF22
Frame end welding	FEW7	MBF23
Frame end welding	FEW8	MBF24

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable

compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

SECTION D.12 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

Plant 2:

(q) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

Insignificant activities

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(b) Three (3) natural gas-fired hot water heaters, identified as W-Heating4 to W-Heating6, 2024 for construction, with a maximum heat input capacity of 4.5 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

(c) Sixty (60) natural gas-fired space heaters, identified as S-Heating61 through S-Heating-120, approved in 2024 for construction, with a maximum heat input capacity of 0.225 MMBTU/hr each, using no control, and exhausting to the atmosphere.

(d) One (1) diesel fire pump, identified as F-pump2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(e) Four (4) cooling towers, identified as CWT27-CWT30, approved in 2024 for construction, with a maximum capacity of 5,500 gal/min each, using no control, and exhausting to the atmosphere.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.12.1 Particulate Emission Limitations [326 IAC 6.5-1-2]

(a) Pursuant to 326 IAC 6.5-1-2(a), the emission units listed below shall comply with the following particulate matter emission limits:

Unit/Process Name	Unit ID	Limit
Natural Gas-Fired Emergency Generators	Emgen11-Emgen20	0.03 grain/dscf *

Unit/Process Name	Unit ID	Limit
Natural Gas-Fired Hot Water Heater	W-Heating4 to W-Heating6	0.03 grain/dscf *
Natural gas-fired space heaters	S-Heating61 to S-Heating-120	0.03 grain/dscf *
Diesel Fire Pump	F-pump2	0.03 grain/dscf *
Natural Gas-Fired Boilers	Boiler3-Boiler4	0.01 grain/dscf*
cooling towers	CWT27-CWT30	0.03 grain/dscf *

*** PM emissions shall not exceed the above limit for each individual unit**

(b) Pursuant to 326 IAC 6.5-1-2(b)(3), the particulate matter emissions from each natural gas-fired boiler (Boiler3 and Boiler4) shall not exceed 0.01 grains per dry standard cubic foot when combusting natural gas.

D.12.2 Preventive Maintenance Plan [326 IAC 2-7-5(12)]

A Preventive Maintenance Plan is required for these facilities and their control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

SECTION E.1 NSPS

Emissions Unit Description:

(y) One (1) diesel fire pump, identified as F-pump, approved in 2022 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.1.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1][40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart IIII

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.1.2 Standards for Stationary Compression Ignition Internal Combustion Engines NSPS [326 IAC 12][40 CFR Part 60, Subpart IIII]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart IIII (included as Attachment A to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.4200(a)(2)(ii) and (c)
(2) 40 CFR 60.4202(d)
(3) 40 CFR 60.4205(c)
(4) 40 CFR 60.4206
(5) 40 CFR 60.4207(b)
(6) 40 CFR 60.4209(a)
(7) 40 CFR 60.4211(a), (c), (f)
(8) 40 CFR 60.4214(b)
(9) 40 CFR 60.4218
(10) 40 CFR 60.4219
(11) Table 3
(12) Table 4
(13) Table 5
(14) Table 8

SECTION E.1 NSPS

Emissions Unit Description:

Plant1:

(e) One (1) diesel fire pump, identified as F-pump1, approved in 2022 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

Plant2:

(e) One (1) diesel fire pump, identified as F-pump2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.1.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1][40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart IIII

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.1.2 Standards for Stationary Compression Ignition Internal Combustion Engines NSPS [326 IAC 12][40 CFR Part 60, Subpart IIII]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart IIII (included as Attachment A to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.4200(a)(2)(ii) and (c)
(2) 40 CFR 60.4202(d)
(3) 40 CFR 60.4205(c)
(4) 40 CFR 60.4206

(5) 40 CFR 60.4207(b)
(6) 40 CFR 60.4209(a)
(7) 40 CFR 60.4211(a), (c), (f)
(8) 40 CFR 60.4214(b)
(9) 40 CFR 60.4218
(10) 40 CFR 60.4219
(11) Table 3
(12) Table 4
(13) Table 5
(14) Table 8

SECTION E.2 NSPS

Emissions Unit Description:

(t) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2022 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.2.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1][40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart JJJJ.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.2.2 Standards Of Performance For Stationary Spark Ignition Internal Combustion Engines NSPS [326 IAC 12][40 CFR Part 60, Subpart JJJJ]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart JJJJ (included as Attachment B to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.4230(a)(4)(iv), (a)(6), (c)
(2) 40 CFR 60.4233(c),(h)
(3) 40 CFR 60.4234
(4) 40 CFR 60.4236(c)
(5) 40 CFR 60.4237(a)
(6) 40 CFR 60.4243(a), (d), (e)
(7) 40 CFR 60.4244
(8) 40 CFR 60.4245(a)(1), (a)(2), (b), (e)
(9) 40 CFR 60.4246
(10) 40 CFR 60.4248
(11) Table 1
(12) Table 3

SECTION E.2 NSPS

Emissions Unit Description:

Plant 1:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

Plant 2:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.2.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1][40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart JJJJ.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.2.2 Standards Of Performance For Stationary Spark Ignition Internal Combustion Engines NSPS [326 IAC 12][40 CFR Part 60, Subpart JJJJ]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart JJJJ (included as Attachment B to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.4230(a)(4)(iv), (a)(6), (c)

(2) 40 CFR 60.4233(c),(h)
(3) 40 CFR 60.4234
(4) 40 CFR 60.4236(c)
(5) 40 CFR 60.4237(a)
(6) 40 CFR 60.4243(a), (d), (e)
(7) 40 CFR 60.4244
(8) 40 CFR 60.4245(a)(1), (a)(2), (b), (e)
(9) 40 CFR 60.4246
(10) 40 CFR 60.4248
(11) Table 1
(12) Table 3

SECTION E.3 NESHAP

Emissions Unit Description:

(t) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2022 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(y) One (1) diesel fire pump, identified as F-pump, approved in 2022 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]

E.3.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1][40 CFR Part 63, Subpart A]

(a) Pursuant to 40 CFR 63.1 the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 20-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 63, Subpart ZZZZ

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.3.2 National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines NESHAP [40 CFR Part 63, Subpart ZZZZ

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart ZZZZ (included as Attachment C to the operating permit), for the emission unit(s) listed above:

(1) 40 CFR 63.6580
(2) 40 CFR 63.6585
(3) 40 CFR 63.6590(a)(2)(iii) and (c) (1)
(4) 40 CFR 63.6595(a)(7)
(5) 40 CFR 63.6665
(6) 40 CFR 63.6670
(7) 40 CFR 63.6675

SECTION E.3 NESHAP

Plant 1:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen01-Emgen10, approved in 2023 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source.

(e) One (1) diesel fire pump, identified as F-pump1, approved in 2023 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

Plant 2:

(a) Ten (10) natural gas-fired emergency generators, identified as Emgen11-Emgen20, approved in 2024 for construction, with a maximum capacity of 700 hp each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart JJJJ, the emergency generator is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the emergency generator is considered an affected source

(e) One (1) diesel fire pump, identified as F-pump2, approved in 2024 for construction, with a maximum capacity of 8.7 MMBTU/hr (1,237 HP), each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart IIII, the fire pump is considered an affected facility.

Under 40 CFR 63, Subpart ZZZZ, the fire pump is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]

E.3.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1][40 CFR Part 63, Subpart A]

(a) Pursuant to 40 CFR 63.1 the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 20-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 63, Subpart ZZZZ

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.3.2 National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines NESHAP [40 CFR Part 63, Subpart ZZZZ

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart ZZZZ (included as Attachment C to the operating permit), for the emission unit(s) listed above:

(1) 40 CFR 63.6580
(2) 40 CFR 63.6585
(3) 40 CFR 63.6590(a)(2)(iii) and (c) (1)
(4) 40 CFR 63.6595(a)(7)
(5) 40 CFR 63.6665
(6) 40 CFR 63.6670
(7) 40 CFR 63.6675

SECTION E.4 NESHAP

Emissions Unit Description:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction, and consisting of the following:

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Four (4) Cathode Inlet Tanks	Cathode Inlet 1-4	1,057	570	4,272,318	2023*	Bag filter CBF15	CS-15
Four (4) HD Mixer Tanks	HD 1-4	634			2023*	Bag filter CBF2	CS-2
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 1-2	792			2023*	Bag filter CBF8	CS-8
One (1) Binder Booth	Binder booth 1	528			2023*	Bag filter CBF16	CS-16
Four (4) Cathode Silos	Cathode silo 1-4	1,057			2023*	Bag filter CBF7	CS-7
Four (4) Cathode Mixer Hoppers	CMH 1-4	528			2023*	Bag filter CBF7	CS-7
Two (2) Binder Mixers tanks	Binder Mixer 1-2	528			2023*	Bag filter CBF1	CS-1
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Binder Storage Tanks	BST 1-4	528			2023*		
Seven (7) LCNT Tanks	LCNT1-7	634			2023*		
One (1) NMP Supply Tank	NMPST1	5,283			2023*		
Four (4) Emf Buffer Tank	EMFBT 1-4	528			2023*		
Four (4) Emf Tanks	EMFT 1-4	528			2023*		
Seven (7) (HD Slurry) Storage Tanks	HDSST 1-7	528			2023*		
One (1) Coater Buffer Tank	CBT 1	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction, and consisting of the following

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Three (3) Cathode Inlet Tanks	Cathode Inlet 5-7	1057	570	4,272,318	2023*	Bag filter CBF17	CS-17
Three (3) HD Mixer Tanks	HD 5-7	634			2023*	Bag filter CBF3	CS-3
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 3-4	792			2023*	Bag filter CBF10	CS-10
One (1) Binder Booth	Binder Booth 2	528			2023*	Bag filter CBF18	CS-18
Three (3) Cathode Silos	Cathode Silo 5-7	1057			2023*	Bag filter CBF9	CS-9
Three (3) Cathode Mixer Hoppers	CMH 5-7	528			2023*	Bag filter CBF9	CS-9
Two (2) Binder Mixers	Binder Mixer 3-4	528			2023*	Bag filter CBF1	CS-1
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Four (4) Binder Storage Tanks	BST 5-8	528			2023*		
Seven (7) LCNT Tanks	LCNT 8-14	634			2023*		
One (1) NMP Supply Tank	NMPST 2	5283			2023*		
Four (4) Emf Buffer Tank	EMFBT 5-7	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	
Four (4) Emf Tanks	EMFT 5-7	528			2023*		
Seven (7) (HD Slurry) Storage Tanks	HDSST 8-14	528			2023*		
One (1) Coater Buffer Tank	CBT 2	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction, and consisting of the following:

~~Unit Name~~	~~Unit ID~~	~~Capacity (gal)**~~	~~Nominal Throughput (gal/hr)~~	~~Nominal Throughput (gal/yr)~~	~~Year~~	~~Control~~	~~Stack~~
~~Four (4) Cathode Inlet Tanks~~	~~Cathode Inlet 8-11~~	~~1057~~	~~570~~	~~4,272,318~~	~~2023*~~	~~Bag filter CBF19~~	~~CS-19~~
~~Four (4) HD Mixer Tanks~~	~~HD 8-11~~	~~634~~			~~2023*~~	~~Bag filter CBF5~~	~~CS-5~~
						~~CAT-01a, CAT-01b and CAT-01c Standby~~	~~S-1a, S-1b, and S-1c Standby~~
~~Two (2) Binder Silos~~	~~Binder Silo 5-6~~	~~792~~			~~2023*~~	~~Bag filter CBF8~~	~~CS-8~~
~~One (1) Binder Booth~~	~~Binder booth 3~~	~~528~~			~~2023*~~	~~Bag filter CBF20~~	~~CS-20~~
~~Four (4) Cathode Silos~~	~~Cathode silo 8-11~~	~~1057~~			~~2023*~~	~~Bag filter CBF11~~	~~CS-11~~
~~Four (4) Cathode Mixer Hoppers~~	~~CMH 8-11~~	~~528~~			~~2023*~~	~~Bag filter CBF11~~	~~CS-11~~
~~Two (2) Binder Mixes~~	~~Binder Mixer 5-6~~	~~528~~			~~2023*~~	~~Bag filter CBF4~~	~~CS-4~~
~~Four (4) Binder Storage Tanks~~	~~BST 9-12~~	~~528~~			~~2023*~~	~~CAT-01a, CAT-01b and CAT-01c Standby~~	~~S-1a, S-1b, and S-1c Standby~~
~~Seven (7) LCNT Tanks~~	~~LCNT 15-21~~	~~634~~			~~2023*~~		
~~One (1) NMP Supply Tank~~	~~NMPST 3~~	~~5283~~			~~2023*~~		
~~Four (4) Emf Buffer Tank~~	~~EMFBT 8-11~~	~~528~~			~~2023*~~		
~~Four (4) Emf Tanks~~	~~EMFT 8-11~~	~~528~~			~~2023*~~		
~~Seven (7) (HD Slurry) Storage Tanks~~	~~HDSST 15-21~~	~~528~~			~~2023*~~		
~~One (1) Coater Buffer Tank~~	~~CBT 3~~	~~528~~			~~2023*~~		

~~* Year approved for construction~~
~~** Each individual tank/booth/silo/hopper has the listed capacity~~

~~Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.~~

~~(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction, and consisting of the following:~~

Unit Name	Unit ID	Capacity (gal)**	Nominal Throughput (gal/hr)	Nominal Throughput (gal/yr)	Year	Control	Stack
Three (3) Cathode Inlet Tanks	Cathode Inlet 12-14	1057	570	4,272,318	2023*	Bag filter CBF21	CS-21
Three (3) HD Mixer Tanks	HD 12-14	634			2023*	Bag filter CBF6	CS-6
						CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Two (2) Binder Silos	Binder Silo 7-8	792			2023*	Bag filter CBF14	CS-14
One (1) Binder Booth	Binder Booth 4	528			2023*	Bag filter CBF22	CS-22
Three (3) Cathode Silos	Cathode Silo 12-14	1057			2023*	Bag filter CBF13	CS-13
Three (3) Cathode Mixer Hoppers	CMH 12-14	528			2023*	Bag filter CBF13	CS-13
Two (2) Binder Mixes	Binder Mixer 7-8	528			2023*	Bag filter CBF4	CS-4
Four (4) Binder Storage Tanks	BST 13-16	528			2023*	CAT-01a, CAT-01b and CAT-01c Standby	S-1a, S-1b, and S-1c Standby
Seven (7) LCNT Tanks	LCNT 22-28	634			2023*		
One (1) NMP Supply Tank	NMPST 4	5283			2023*		
Four (4) Emf Buffer Tank	EMFBT 12-14	528			2023*		
Four (4) Emf Tanks	EMFT 12-14	528			2023*		
Seven (7) (HD Slurry) Storage Tanks	HDSST 22-28	528			2023*		
One (1) Coater Buffer Tank	CBT 4	528			2023*		

* Year approved for construction
** Each individual tank/booth/silo/hopper has the listed capacity

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]

E.4.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1][40 CFR Part 63, Subpart A]

(a) Pursuant to 40 CFR 63.1 the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 20-

~~1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 63, Subpart CCCCCCC.~~

~~(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:~~

~~Indiana Department of Environmental Management~~
~~Compliance and Enforcement Branch, Office of Air Quality~~
~~100 North Senate Avenue~~
~~MC 61-53 IGCN 1003~~
~~Indianapolis, Indiana 46204-2251~~

~~E.4.2 National Emission Standards for Hazardous Air Pollutants for Manufacture of Paint and Allied Products NESHAP [40 CFR Part 63, Subpart CCCCCCC~~

~~The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart CCCCCCC (included as Attachment D to the operating permit), for the emission unit(s) listed above:~~

~~(1) 40 CFR 63.11599(a) & (b)~~
~~(2) 40 CFR 63.11600~~
~~(3) 40 CFR 63.11601~~
~~(4) 40 CFR 63.11602~~
~~(5) 40 CFR 63.11603(a), (b), (c)~~
~~(6) 40 CFR 63.11605~~
~~(7) 40 CFR 63.11606~~
~~(8) 40 CFR 63.11607~~
~~(9) Table 1~~

SECTION E.4 NESHAP

Emissions Unit Description:

Note: Complete facility descriptions are in Section A.3

Plant1:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 1, approved in 2023 for construction, and consisting of the following:

..
Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 2, approved in 2023 for construction, and consisting of the following

..
Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 3, approved in 2023 for construction, and consisting of the following:

..
Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 4, approved in 2023 for construction, and consisting of the following:

..

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction and approved in 2024 for modification, using Activated Carbon Towers (CAT-03a, CAT-03b, CAT-03c, CAT-03d, & CAT-03e Standby) for VOC/HAP control, exhausting to stack (S-3a, S-3b, S-3c, S-3d, and S-3e Standby), including::

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as NMPST 1 and NMPST 2; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 3 and NMPST 4.

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

Plant 2:

(a) One (1) cathode raw material handling and mixing line, identified as CLine 5, approved in 2024 for construction, and consisting of the following:

..

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(b) One (1) cathode raw material handling and mixing line, identified as CLine 6, approved in 2024 for construction, and consisting of the following:

..

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(c) One (1) cathode raw material handling and mixing line, identified as CLine 7, approved in 2024 for construction, and consisting of the following:

..

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(d) One (1) cathode raw material handling and mixing line, identified as CLine 8, approved in 2024 for construction, and consisting of the following:

..

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(e) NMP Storage Tanks associated with the cathode raw material handling and mixing line, approved in 2024 for construction, using Activated Carbon Towers (CAT-10a, CAT-10b, CAT-10c, CAT-10d, & CAT-10e Standby) for VOC/HAP control, exhausting to stack (S-10a, S-10b, S-10c, S-10d, and 10-3e Standby), including:

(1) Two (2) 5,283 gallon NMP Storage Tanks, identified as Tanks NMPST 5 and NMPST 6; and

(2) Two (2) 7,925 gallon used NMP Storage Tanks, identified as Tanks NMPST 7 and NMPST 8.

Under 40 CFR 63, Subpart CCCCCCC, the cathode raw material handling and mixing line is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

National Emission Standards for Hazardous Air Pollutants (NESHAP) Requirements [326 IAC 2-7-5(1)]

E.4.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1][40 CFR Part 63, Subpart A]

(a) Pursuant to 40 CFR 63.1 the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 20-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 63, Subpart CCCCCCC.

(b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.4.2 National Emission Standards for Hazardous Air Pollutants for Manufacture of Paint and Allied Products NESHAP [40 CFR Part 63, Subpart CCCCCCC

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart CCCCCCC (included as Attachment D to the operating permit), for the emission unit(s) listed above:

(1) 40 CFR 63.11599(a) & (b)
(2) 40 CFR 63.11600
(3) 40 CFR 63.11601
(4) 40 CFR 63.11602
(5) 40 CFR 63.11603(a), (b), (c)
(6) 40 CFR 63.11605
(7) 40 CFR 63.11606
(8) 40 CFR 63.11607
(9) Table 1

SECTION E.5 NSPS

Emissions Unit Description:

Plant 1:

(q) Two (2) natural gas-fired boilers, identified as Boiler1 and Boiler2, approved in 2024 for construction, with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

Plant 2:

(q) Two (2) natural gas-fired boilers, identified as Boiler3 and Boiler4, approved in 2024 for construction with a maximum heat input capacity of 12.50 MMBTU/hr, each, using no control, and exhausting to the atmosphere.

Under 40 CFR 60, Subpart Dc, the boilers are considered an affected facility.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

New Source Performance Standards (NSPS) Requirements [326 IAC 2-7-5(1)]

E.5.1 General Provisions Relating to New Source Performance Standards [326 IAC 12-1][40 CFR Part 60, Subpart A]

(a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, for the emission unit(s) listed above, except as otherwise specified in 40 CFR Part 60, Subpart Dc.

(b) Pursuant to 40 CFR 60.4, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

E.5.2 Standards of Performance for Small Industrial-Commerical-Institutional Steam Generating Units NSPS [326 IAC 12][40 CFR Part 60, Subpart Dc]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart Dc (included as Attachment E to the operating permit), which are incorporated by reference as 326 IAC 12, for the emission unit(s) listed above:

(1) 40 CFR 60.40c (a)
(2) 40 CFR 60.41c
(3) 40 CFR 60.48c (a)
(4) 40 CFR 60.48c (g)
(5) 40 CFR 60.48c (i)
(6) 40 CFR 60.48c (j)

....

~~INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT~~
~~OFFICE OF AIR QUALITY~~
~~COMPLIANCE AND ENFORCEMENT BRANCH~~

~~Part 70 Quarterly Report~~

~~Source Name:~~ ~~StarPlus Energy LLC~~
~~Source Address:~~ ~~2724 N. 50 E., Kokomo, Indiana 46901~~
~~Part 70 Permit No.:~~ ~~067-45648-00093~~
~~Facility:~~ ~~Four (4) coating lines, identified as C-coat1, C-coat2, C-coat3 and C-coat4~~
~~Parameter:~~ ~~VOC Usage~~
~~Limit:~~ ~~The combined VOC usage to the four (4) coating lines, identified as C-coat1, C-coat2, C-coat3 and C-coat4, shall not exceed 89,002.5 tons per twelve (12) consecutive month period with compliance determined at the end of each month.~~

~~QUARTER:~~_____ ~~YEAR:~~_____

~~Month~~	~~Column 1~~	~~Column 2~~	~~Column 1 + Column 2~~
	~~(Combined VOC Usage) (tons)~~	~~(Combined VOC Usage) (tons)~~	~~(Combined VOC Usage) (tons)~~
	~~This Month~~	~~Previous 11 Months~~	~~12 Month Total~~

~~☐ No deviation occurred in this quarter.~~
~~☐ Deviation/s occurred in this quarter.~~
~~Deviation has been reported on:~~ _____

~~Submitted by:~~ _____

~~Title / Position:~~ _____

~~Signature:~~ _____

~~Date:~~ _____

~~Phone:~~_____

....

IDEM Contact

(a) If you have any questions regarding this permit, please contact Sidhant Paul, Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251, or by telephone at (317) -232-8219 or (800) 451-6027, and ask for Sidhant Paul or (317) 232-8219.

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM Air Permits page on the Internet at: https://www.in.gov/idem/airpermit/public-participation/; and the Citizens' Guide to IDEM on the Internet at: https://www.in.gov/idem/resources/citizens-guide-to-idem/

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Brian C. Rockensuess
Commissioner

SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Alan Kirchoff
StarPlus Energy LLC
2724 N 50 E
Kokomo, IN 46901

DATE: June 18, 2024

FROM: Jenny Acker, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
Title V Significant Permit Modification
067-47628-00093

This notice is to inform you that a final decision has been issued for the air permit application referenced above.

Our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person. In addition, the Notice of Decision has been sent to the OAQ Permits Branch Interested Parties List and, if applicable, the Consultant/Agent and/or Responsible Official/Authorized Individual.

The final decision and supporting materials are available electronically; the original signature page is enclosed for your convenience. The final decision and supporting materials available electronically at:

IDEM's online searchable database: http://www.in.gov/apps/idem/caats/ . Choose Search Option **by Permit Number**, then enter permit 47628

and

IDEM's Virtual File Cabinet (VFC): https://www.in.gov/idem. Enter VFC in the search box, then search for permit documents using a variety of criteria, such as Program area, date range, permit #, Agency Interest Number, or Source ID.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, or have difficulty accessing the documents online, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

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Eric J. Holcomb
Governor

Brian C. Rockensuess
Commissioner

June 18, 2024

TO: Kokomo-Howard County Public Library

From: Jenny Acker, Branch Chief
Permits Branch
Office of Air Quality

Subject: **Important Information for Display Regarding a Final Determination**

Applicant Name: **StarPlus Energy LLC**
Permit Number: **067-47628-00093**

You previously received information to make available to the public during the public comment period of a draft permit. Enclosed is a copy of the final decision and supporting materials for the same project. Please place the enclosed information along with the information you previously received. To ensure that your patrons have ample opportunity to review the enclosed permit, **we ask that you retain this document for at least 60 days.**

The applicant is responsible for placing a copy of the application in your library. If the permit application is not on file, or if you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185.

Enclosures
Final Library 1/9/2017

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Eric J. Holcomb
Governor

Brian C. Rockensuess
Commissioner

June 18, 2024
StarPlus Energy LLC
067-47628-00093

To: Interested Parties

This notice is to inform you that a final decision has been issued for the air permit application referenced above. This notice is for informational purposes only. You are not required to take any action.

You are receiving this notice because you asked to be on IDEM's notification list for this company and/or county; or because your property is nearby the company being permitted; or because you represent a local/regional government entity.

The enclosed Notice of Decision Letter provides additional information about the final permit decision.

The final decision and supporting materials are available electronically at:

IDEM's online searchable database: http://www.in.gov/apps/idem/caats/ . Choose Search Option by Permit Number, then enter permit 47628

and

IDEM's Virtual File Cabinet (VFC): https://www.in.gov/idem. Enter VFC in the search box, then search for permit documents using a variety of criteria, such as Program area, date range, permit #, Agency Interest Number, or Source ID.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit.

Please Note: *If you would like to be removed from the Air Permits mailing list, please contact Joanne Smiddie-Brush with the Air Permits Administration Section at 1-800-451-6027, ext. 3-0185 or via e-mail at JBRUSH@IDEM.IN.GOV. If you have recently moved and this Notice has been forwarded to you, please notify us of your new address and if you wish to remain on the mailing list. Mail that is returned to IDEM by the Post Office with a forwarding address in a different county will be removed from our list unless otherwise requested.*

Enclosure
Final Interested Parties Cover Letter 10/13/2023

Mail Code 61-53

IDEM Staff	TCHAMPIO 6/18/2024 StarPlus Energy LLC 067-47628-00093 final 1 of 3		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender	▶	Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		Alan Kirchoff StarPlus Energy LLC 2724 N 50 E Kokomo IN 46901 (Source CAATS) via UPS									
2		Yunjae Kim CEO StarPlus Energy LLC 2724 N 50 E Kokomo IN 46901 *(RO CAATS)*									
3		Kokomo City Council and Mayors Office City Hall, 100 S Union St Kokomo IN 46901 *(Local Official)*									
4		Kokomo-Howard County Public Library 220 N Union St Kokomo IN 46901-4600 *(Library)*									
5		Howard County Commissioners 220 N Main St Kokomo IN 46901-4624 *(Local Official)*									
6		Howard County Health Department 120 E Mulberry St #206 Kokomo IN 46901-4657 *(Health Department)*									
7		Holly Argiris Environmental Resources Management (ERM) 8425 Woodfield Crossing Blvd Ste 560-W Indianapolis IN 46240 *(Consultant)*									
8		Greater Kokomo Economic Development Alliance Inc 700 E Firmin St #200 Kokomo IN 46902 *(Affected Party)*									
9		Frank & Joy Fouch 3002 N Delphos St Kokomo IN 46901 *(Affected Party)*									
10		Current Resident 2942 N Delphos St Kokomo IN 46901 *(Affected Party)*									
11		James Roark 2936 N Delphos St Kokomo IN 46901 *(Affected Party)*									
12		Lester E. & Edith Humbert 2930 N Delphos St Kokomo IN 46901 *(Affected Party)*									
13		Teresa Young 2922 N Delphos St Kokomo IN 46901 (Affected Party)									
14		Mark Matthews 2916 N Delphos St Kokomo IN 46901 *(Affected Party)*									
15		Larry & Dorothy Sweezy 2908 N Delphos St Kokomo IN 46901 *(Affected Party)*									

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is $50,000 per piece subject to a limit of $50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is $500. The maximum indemnity payable is $25,000 for registered mail, sent with optional postal insurance. See ***Domestic Mail Manual*** **R900, S913**, and **S921** for limitations of coverage on inured and COD mail. See ***International Mail Manual*** for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.

FACSIMILIE OF PS Form 3877

Mail Code 61-53

IDEM Staff	TCHAMPIO 6/18/2024 StarPlus Energy LLC 067-47628-00093 final 2 of 3		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender	▶	Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		Apt622 LLC 2832 N Delphos St Kokomo IN 46901 (Affected Party)									
2		Daniel P. & Doris Quillen 2826 N Delphos St Kokomo IN 46901 *(Affected Party)*									
3		Mark & Lisa Koon 2820 N Delphos St Kokomo IN 46901 *(Affected Party)*									
4		Lisa Bowley 2814 N Delphos Kokomo IN 46901 *(Affected Party)*									
5		Gloria Longfellow 2800 N Delphos St Kokomo IN 46901 *(Affected Party)*									
6		Ann Spence 2720 N Delphos St Kokomo IN 46901 *(Affected Party)*									
7		Mark & Lisa Koon 2820 N Delphos St Kokomo IN 46901 *(Affected Party)*									
8		Valencia, Victor Vance Guerrero 2808 N Delphos St Kokomo IN 46901 *(Affected Party)*									
9		Gloria Longfellow 2800 N Delphos St Kokomo N 46901 *(Affected Party)*									
10		Ann Spence 2720 N Delphos St Kokomo IN 46901 *(Affected Party)*									
11		Annamarie & Stephen Rehling 2710 N Delphos St Kokomo IN 46901 *(Affected Party)*									
12		Larry Harmon 1110 Danbury Dr Kokomo IN 46901 *(Affected Party)*									
13		Albert Clark 1116 Danbury Dr Kokomo IN 46901 (Affected Party)									
14		Anthony & Donna Lawson 1124 Danbury Dr Kokomo IN 46901 *(Affected Party)*									
15		Anthony Carter 1125 Danbury Dr Kokomo IN 46901 *(Affected Party)*									

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is $50,000 per piece subject to a limit of $50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is $500. The maximum indemnity payable is $25,000 for registered mail, sent with optional postal insurance. See ***Domestic Mail Manual*** **R900, S913**, and **S921** for limitations of coverage on inured and COD mail. See ***International Mail Manual*** for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.

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Mail Code 61-53

IDEM Staff	TCHAMPIO 6/18/2024 StarPlus Energy LLC 067-47628-00093 final 3 of 3		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender	▶	Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		Calvin Roger & Heather Jayme 2605 N Ohio Ave Kokomo IN 46901 (Affected Party)									
2		Roberta Jane Hunsberger 2618 N Ohio St Kokomo IN 46901 *(Affected Party)*									
3		UAW Local 1166 Realty 2761 S 50 E Kokomo IN 46901 *(Affected Party)*									
4		Jack & Jody Hutcheson 2983 N 50 E Kokomo IN 46901 *(Affected Party)*									
5		Jonathan Underwood 1398 E 300 N Kokomo IN 46901 *(Affected Party)*									
6		Michael & Constance Sturgeon Or Current Resident 3863 S 700 E Marion IN 46953 *(Affected Party)*									
7		Randall Underwood 3124 N 50 E Kokomo IN 46901 *(Affected Party)*									
8		Ronald Schafer 3246 Touby Pike Kokomo IN 46901 *(Affected Party)*									
9		FCA US LLC 3660 N US HWY 31 Kokomo IN 46901 *(Affected Party)*									
10											
11											
12											
13											
14											
15											

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is $50,000 per piece subject to a limit of $50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is $500. The maximum indemnity payable is $25,000 for registered mail, sent with optional postal insurance. See ***Domestic Mail Manual*** **R900, S913**, and **S921** for limitations of coverage on inured and COD mail. See ***International Mail Manual*** for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.

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