STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF THE DIRECTOR

In the matter of administrative proceedings against **L'ANSE WARDEN ELECTRIC COMPANY, LLC,** a corporation organized under the laws of the State of Delaware and doing business at 157 South Main Street in the Village of L'Anse, County of Baraga, State of Michigan	AQD No. 35-2016 SRN: B4260

STIPULATION FOR ENTRY OF FINAL ORDER
BY CONSENT

This proceeding resulted from allegations by the Michigan Department of Environmental Quality (MDEQ) Air Quality Division (AQD) against L'Anse Warden Electric Company, LLC (Company), a Delaware limited liability company, doing business at 157 South Main Street in the Village of L'Anse, State of Michigan, with State Registration Number (SRN) B4260 (Facility). The MDEQ alleges that the Company has operated in violation of Renewable Operating Permit (ROP) No. MI-ROP-B4260-2011, Source-Wide Permit to Install (PTI) MI-PTI-B4260-2011, PTI No. 168-07D, and Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, Mich Admin Code, R 336.1901, as amended (Rule 901). Specifically, the MDEQ alleges that the Company exceeded federally enforceable permitted emission limitations for hydrochloric acid (HCl) from EU-BOILER#1 and allowed fugitive dust fallout in violation of Rule 901 and applicable federally enforceable State Implementation Plan provisions relating to the emission of particulates from fugitive dust sources. The Company, without admitting any allegation of fact or conclusions of law, and MDEQ stipulate to resolve the alleged violations by entry of this Stipulation for Entry of a Final Order by Consent (Consent Order).

The Company and MDEQ stipulate as follows:

1. The Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451), MCL 324.101 *et seq.* is an act that controls pollution to protect the environment and natural resources in this State.

2. Article II, Pollution Control, Part 55 of Act 451 (Part 55), MCL 324.5501 *et seq.* provides for air pollution control regulations in this State.

3. The MDEQ was created as a principal department within the Executive Branch of the State of Michigan pursuant to Executive Order 2011-1 and has all statutory authority, powers, duties, functions and responsibilities to administer and enforce all provisions of Part 55.

4. The Director has delegated authority to the Chief of the AQD (AQD Chief) to enter into this Consent Order.

5. The termination of this matter by a Consent Order pursuant to Section 5528 of Part 55 is proper and acceptable.

6. The Company and the MDEQ agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the Company that the law has been violated.

7. This Consent Order becomes effective on the date of execution (effective date of this Consent Order) by the AQD Chief.

8. The Company shall achieve compliance with the aforementioned regulations in accordance with the requirements contained in this Consent Order.

COMPLIANCE PROGRAM AND IMPLEMENTATION SCHEDULE

9.A. Emission Limits and Rules

1. The Company shall comply with the applicable HCl emission limits for EU-BOILER#1 specified in ROP No. MI-ROP-B4260-2011, as amended.

2. On and after the effective date of this Consent Order, the Company shall comply with the Aggregate HAPs emission limits for EU-BOILER#1 specified in ROP No. MI-ROP-B4260-2011, as amended.

3. The Company shall not permit fugitive dust emissions which result in a violation of Rule 901.

9.B. Permit

1. On and after the effective date of this Consent Order, the Company shall comply with the fuel types for EU-BOILER#1 as specified in PTI No. 67-16.

2. On and after the effective date of this Consent Order, the Company shall comply with Special Condition IX.1 for EU-BOILER#1 as specified in PTI No. 67-16.

9.C. Testing

1. No later than one-hundred and twenty (120) days following the most recent stack test for HCl from EU-BOILER#1 and continuing quarterly thereafter, the Company shall submit a test plan for HCl from EU-BOILER#1 which meets the requirements specified in Exhibit A to the AQD Upper Peninsula District Supervisor and the Technical Programs Unit Supervisor for approval prior to testing.

2. No later than thirty (30) days following the AQD approval of a test plan submitted by the Company pursuant to paragraph 9.C.1, the Company shall conduct stack testing for HCl from EU-BOILER#1.

3. Within sixty (60) days after a completed test, the Company shall submit to the AQD Upper Peninsula District Supervisor, AQD Technical Programs Unit Supervisor, and United States Environmental Protection Agency (EPA) Region 5, a test report, which includes the test data and results.

4. Not less than seven (7) days prior to any stack testing which will be used to demonstrate compliance, including stack testing for HCl from EU-Boiler#1, the Company or an authorized agent, shall notify the AQD Upper Peninsula District Supervisor, AQD Technical Programs Unit Supervisor, and EPA Region 5, in writing, of the time and place of the tests and who shall conduct them. A representative of the AQD shall have the opportunity to witness the tests.

5. After four (4) consecutive quarterly testing events demonstrating compliance with the EU-BOILER#1 HCl emission limits, the Company shall perform two (2) HCl emission tests on a semi-annual basis, followed by one (1) HCl emission test within the next three (3) years.

9.D. Monitoring and Recordkeeping

1. On and after the effective date of this Consent Order, the Company shall comply with the approved fuel procurement and management plan (FPMP) attached to this Consent Order as Exhibit B, and any subsequent revision. The Company or AQD may request revisions to the FPMP when appropriate based upon changes in processes, as a corrective action to a cited violation, or other circumstances. Any revisions to the FPMP while this Consent Order is in force and effect shall be approved in writing by the AQD Upper Peninsula District Supervisor in consultation with EPA Region 5.

2. On and after the effective date of this Consent Order, the Company shall comply with the approved fugitive dust plan (FDP) attached to this Consent Order as Exhibit C, and any subsequent revision. The Company or AQD may request revisions to the FDP when appropriate based

upon changes in processes, as a corrective action to a cited violation, or other circumstances. Any revisions to the FDP while this Consent Order is in force and effect shall be approved in writing by the AQD Upper Peninsula District Supervisor in consultation with EPA Region 5.

9.E. Process Operation

1. Not more than 180 days after the effective date of this Consent Order, the Company shall have completed installation of permanent enclosures of the incline conveyor from the fuel receiving hopper to the fuel storage building, the incline conveyor from fuel storage building to the boiler fuel bin, and the fuel receiving hopper, which includes the cyclones and truck unloading area, to eliminate fugitive emissions. The installation of permanent enclosures shall be consistent with the engineering designs included in Exhibit D, which is attached to this Consent Order.

2. Not more than fifteen (15) days after the Company has completed installation of the permanent enclosures described in Exhibit D, the Company shall submit to the AQD Upper Peninsula District Supervisor a revised FDP which will incorporate this equipment into the FDP.

3. If after the installation of the permanent enclosures described in Exhibit D the MDEQ issues a violation notice identifying a violation of Rule 901 due to the emission of particulates from fugitive dust sources, the AQD Upper Peninsula District Supervisor may request in writing the Company submit a revision to the FDP. The Company shall submit to the AQD Upper Peninsula District Supervisor a revised FDP to address the cause of the violation within thirty (30) days of the written request.

4. Prior to the termination of this Consent Order, conditions requiring the continued operation and maintenance of the permanent enclosures described in Exhibit D shall be included into the Company's ROP.

5. On and after the effective date of this Consent Order, the Company shall not operate the pneumatic conveyor system. The pneumatic conveyor system shall be disabled by disconnecting electrical power, removing a required mechanical component, or by other means approved by the AQD Upper Peninsula District Supervisor.

6. Not more than five (5) days after the effective date of this Consent Order, the Company shall submit written notification to the AQD District Supervisor describing how the pneumatic conveyor system was disabled.

7. Before the Company restarts operation of the pneumatic conveyor system, the Company shall demonstrate to the satisfaction of the AQD that the system qualifies under an exemption from PTI requirements or a PTI is issued which addresses the installation and operation of the pneumatic conveyor system.

10. Force Majeure

A. The Company shall perform the requirements of this Consent Order within the time limits established herein, unless performance is prevented or delayed by events that constitute a Force Majeure. Any delay in the performance attributable to a Force Majeure shall not be deemed a violation of the Company's obligations under this Consent Order in accordance with this section.

B. For the purpose of this Consent Order, Force Majeure means an occurrence or nonoccurrence arising from causes not foreseeable, beyond the control of, and without the fault of the Company, such as: an Act of God, untimely review of permit applications or submissions by the MDEQ or other applicable authority, and acts or omissions of third parties that could not have been avoided or overcome by the Company's diligence and that delay the performance of an obligation under this Consent Order. Force Majeure does not include, among other things, unanticipated or increased costs, changed financial circumstances, or failure to obtain a permit or license as a result of the Company actions or omissions.

C. The Company shall notify the MDEQ, by telephone, within 48 hours of discovering any event that may cause a delay in its compliance with any provision of this Consent Order. Verbal notice shall be followed by written notice within ten (10) calendar days and shall describe, in detail, the anticipated length of delay, the precise cause or causes of delay, the measures taken by the Company to prevent or minimize the delay, and the timetable by which those measures shall be implemented. The Company shall adopt all reasonable measures to avoid or minimize any such delay.

D. Failure of the Company to comply with the notice requirements and time provisions under paragraph 10.C shall render this paragraph 10 void and of no force and effect as to the particular incident involved. The MDEQ may, at its sole discretion and in appropriate circumstances, waive in writing the notice requirements of paragraph 10.C, above.

E. If the parties agree that the delay or anticipated delay was beyond the control of the Company, this may be so stipulated, and the parties to this Consent Order may agree upon an appropriate modification of this Consent Order. However, the MDEQ is the final decision-maker on whether or not

the matter at issue constitutes a Force Majeure. The burden of proving that any delay was beyond the reasonable control of the Company and that all the requirements of this paragraph 10 have been met by the Company rests with the Company.

F. An extension of one compliance date based upon a particular incident does not necessarily mean that the Company qualifies for an extension of a subsequent compliance date without providing proof regarding each incremental step or other requirement for which an extension is sought.

GENERAL PROVISIONS

11. This Consent Order in no way affects the Company's responsibility to comply with any applicable state and federal, or local laws or regulations, including without limitation, any amendments to the federal Clean Air Act, 42 USC 7401 *et seq.*, Act 451, Part 55 or their rules and regulations, or to the State Implementation Plan. Nothing in this Consent Order shall operate to preclude the Company from seeking or the MDEQ from issuing, consistent with the federal Clean Air Act, Part 55 of Act 451 and the MDEQ Air Pollution Control Rules, a Permit to Install for a physical modification or change in method of operation at the Facility.

12. This Consent Order constitutes a civil settlement and satisfaction as to the resolution of state violations of federally enforceable permitted emission limitations for HCl from EU-BOILER#1; state violations of the applicable federally enforceable requirements of the MDEQ's Part 3 Air Pollution Control Rules related to the emission of fugitive dust; and state violations of MDEQ's Air Pollution Control Rule 901 related to the emission of fugitive dust. However, the Consent Order does not resolve any state criminal action that may result from these same violations.

13. Within thirty (30) days after the effective date of this Consent Order, the Company shall pay to the General Fund of the State of Michigan, in the form of a check made payable to the "State of Michigan" and mailed to the Michigan Department of Environmental Quality, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909-8157, a settlement amount of $108,700.00 which includes AQD costs for investigation and enforcement. This total settlement amount shall be paid within thirty (30) days of the effective date of this Consent Order. To ensure proper credit, all payments made pursuant to this Consent Order shall include the "Payment Identification Number AQD40146" on the front of the check and/or in the cover letter with the payment. This settlement amount is in addition to any fees, taxes, or other fines that may be imposed on the Company by law.

14. On and after the effective date of this Consent Order, if the Company fails to comply with paragraph 9.A.1, 9.A.2, 9.B.1, 9.E.1, 9.E.5 of this Consent Order, the Company is subject to a stipulated fine of up to $10,000.00 per violation per day. On and after the effective date of this Consent Order, if the Company fails to comply with paragraph 9.A.3 of this Consent Order, the Company is subject to a stipulated fine of up to $10,000.00 per violation. On and after the effective date of this Consent Order, if the Company fails to comply with paragraph 9.B.2, 9.C.1, 9.C.2, 9.C.3, 9.C.4, 9.C.5, 9.E.2, 9.E.3, 9.E.6, 9.E.7, Exhibit B, or Exhibit C, of this Consent Order, the Company is subject to a stipulated fine of up to $5,000.00 per violation. The amount of the stipulated fines imposed pursuant to this paragraph shall be within the discretion of the MDEQ. Stipulated fines submitted under this Consent Order shall be by check, payable to the State of Michigan within thirty (30) days of written demand and shall be mailed to the Michigan Department of Environmental Quality, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909-8157. To ensure proper credit, all payments shall include the "Payment Identification Number AQD40146" on the front of the check and/or in the cover letter with the payment. Payment of stipulated fines shall not alter or modify in any way the Company's obligation to comply with the terms and conditions of this Consent Order.

15. The AQD, at its discretion, may seek stipulated fines or statutory fines for any violation of this Consent Order which is also a violation of any provision of applicable federal and state law, rule, regulation, permit, or MDEQ administrative order. However, the AQD is precluded from seeking both a stipulated fine under this Consent Order and a statutory fine for the same violation. Any condition of the PTI No. 67-16 or subsequent permit revision which is under appeal by the Company pursuant to Section 5506(14) of Part 55, MCL 324.5506(14), shall not be subject to stipulated penalties under this Consent Order provided that the appeal process began before a violation notice is issued.

16. To ensure timely payment of the settlement amount assessed in paragraph 13 and any stipulated fines assessed pursuant to paragraph 14 of this Consent Order, the Company shall pay an interest penalty to the State of Michigan each time it fails to make a complete or timely payment under this Consent Order. The interest payment shall be determined at a rate of interest that is equal to one percent (1%) plus the average interest rate paid at auctions of 5-year United States treasury notes during the six (6) months immediately preceding July 1 and January 1, as certified by the state treasurer, compounded annually, and using the full increment of amount due as principal, calculated from the due date specified in this Consent Order until the date that delinquent payment is finally paid in full. Payment

of an interest penalty by the Company shall be made to the State of Michigan in accordance with paragraph 14 of this Consent Order. Interest payments shall be applied first towards the most overdue amount or outstanding interest penalty owed by the Company before any remaining balance is applied to subsequent payment amount or interest penalty.

17. The Company agrees not to contest the legal basis for the settlement amount assessed pursuant to paragraph 13. The Company also agrees not to contest the legal basis for any stipulated fines assessed pursuant to paragraph 14 of this Consent Order. However, the Company reserves the right to dispute in a court of competent jurisdiction, pursuant to MCL 600.631, the factual basis upon which a demand by MDEQ of stipulated fines is made, including whether a Force Majeure excused any failure or delay of the Company to comply with this Consent Order. In addition, the Company agrees that said fines have not been assessed by the MDEQ pursuant to Section 5529 of Part 55 and therefore are not reviewable under Section 5529 of Part 55.

18. This compliance program is not a variance subject to the twelve (12) month limitation specified in Section 5538 of Part 55.

19. This Consent Order shall remain in full force and effect for a period of at least five (5) years. Thereafter, the Consent Order shall terminate only upon written notice of termination issued by the AQD Chief. Prior to issuance of a written notice of termination, the Company shall submit a request, to the AQD Chief at the Michigan Department of Environmental Quality, Air Quality Division, P.O. Box 30260, Lansing, Michigan 48909-7760, consisting of a written certification that the Company has fully complied with all the requirements of this Consent Order and has made all payments including all stipulated fines required by this Consent Order. Specifically, this certification shall include: (i) the date of compliance with each provision of the compliance program and the date any payments or stipulated fines were paid; (ii) a statement that all required information has been reported to the AQD Upper Peninsula District Supervisor; (iii) confirmation that all records required to be maintained pursuant to this Consent Order are being maintained at the Facility; and, (iv) such information as may be requested by the AQD Chief.

20. In the event the Company sells or transfers the Facility, with SRN B4260, it shall advise any purchaser or transferee of the existence of this Consent Order in connection with such sale or transfer. Within thirty (30) calendar days, the Company shall also notify the AQD Upper Peninsula District Office Supervisor, in writing, of such sale or transfer, the identity and address of any purchaser or transferee, and

confirm the fact that notice of this Consent Order has been given to the purchaser and/or transferee. As a condition of the sale, the Company must obtain the consent of the purchaser and/or transferee, in writing, to assume all of the obligations of this Consent Order. A copy of that agreement shall be forwarded to the AQD Upper Peninsula District Supervisor within thirty (30) days of assuming the obligations of this Consent Order.

21. Prior to the effective date of this Consent Order and pursuant to the requirements of Sections 5511 and 5528(3) of Part 55, the public and EPA Region 5 were notified of a 30-day public comment period and was provided the opportunity for a public hearing and comment.

22. Section 5530 of Part 55 may serve as a source of authority but not a limitation under which the Consent Order may be enforced. Further, Part 17 of Act 451 and all other applicable laws and any other legal basis or applicable statute may be used to enforce this Consent Order.

23. The Company hereby stipulates that entry of this Consent Order is a result of an action by MDEQ to resolve alleged violations of its Facility located at 157 South Main Street in the Village of L'Anse, County of Baraga, State of Michigan. The Company further stipulates that it will take all lawful actions necessary to fully comply with this Consent Order, even if the Company files for bankruptcy in the future. The Company will not seek discharge of the settlement amount and any stipulated fines imposed hereunder in any future bankruptcy proceedings, and the Company will take necessary steps to ensure that the settlement amount and any future stipulated fines are not discharged. The Company, during and after any future bankruptcy proceedings, will ensure that the settlement amount and any future stipulated fines remain an obligation to be paid in full by the Company to the extent allowed by applicable bankruptcy law.

The undersigned certifies that he/she is fully authorized by the Company to enter into this Consent Order and to execute and legally bind the Company to it.

L'ANSE WARDEN ELECTRIC COMPANY, LLC

_____
Print Name and Title

_____ Date: _____
Signature

The above signatory subscribed and sworn to before me this ___ day of _____, 20___.

_____
Notary Public Signature

Approved as to Content:

_____
Lynn Fiedler, Chief
AIR QUALITY DIVISION
DEPARTMENT OF
ENVIRONMENTAL QUALITY

Dated: _____

Approved as to Form:

_____
Neil Gordon, Section Head
ENVIRONMENTAL REGULATION SECTION
ENVIRONMENT, NATURAL RESOURCES,
AND AGRICULTURE DIVISION
DEPARTMENT OF ATTORNEY GENERAL

Dated: _____

The Chief of the Air Quality Division having had opportunity to review the Consent Order and having been delegated authority to enter into Consent Orders by the Director of the Michigan Department of Environmental Quality pursuant to the provisions of Part 55 of Act 451 and otherwise being fully advised on the premises,

HAS HEREBY ORDERED that the Consent Order is approved and shall be entered in the record of the MDEQ as a Final Order.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

_____

Lynn Fiedler, Chief
Air Quality Division

Effective Date: _____

Submittal of Source Emission Test Plans and Reports

INTRODUCTION

The source emission test is often the ultimate determination of compliance. The results of a test are of great significance to both the regulatory agency and the source. Since the results may determine the course of future enforcement discussions between the agency and the source, it is important that the test be performed in a valid and representative manner. The complex nature of the various sampling methods places great responsibility on both agency and testing personnel to assure each test is an accurate representation of a source's actual emissions.

The objective of this document is to describe the Air Quality Division's (AQD's) technical submittal requirements for a source test. The format described applies to the requirements of the Michigan Department of Environmental Quality (MDEQ) Rule 1001 (4), federal regulations (Part 60-New Source Performance Standards, Part 61- National Emission Standards for Hazardous Air Pollutants (NESHAP), Part 63-Maximum Achievable Control Technology) and to any other emission test submitted for reasons such as a permit requirement, for a consent order, consent judgment, or at the request of the AQD.

TEST PLAN SUBMITTAL

In order to establish uniform requirements and help ensure proper test methods and procedures are employed, **the information specified below should be submitted to the appropriate AQD district office (DO) and the Technical Programs Unit (TPU) in Lansing,** at least 30 days prior to the scheduled test date. A complete submittal will minimize the possibility of a test rejection as a result of improper sampling or data collection methods. The proposed test date(s) must be included in the test plan to be considered complete.

Testing shall be performed in strict accordance with the procedures specified in Title 40 of the Code of Federal Regulations, Part 60 (Standards of Performance for New Stationary Sources, Appendix A, as amended), Part 61 (NESHAP, Appendix B), and Part 51 (Requirements for Preparation, Adoption, and Submittal of Implementation Plans, Appendix M); and the MDEQ Rules, Part 10, Intermittent Testing and Sampling. Any variations in the sampling or analytical procedures must be described in the test plan and receive approval from the AQD prior to testing. If state or federal test methods are not available for the pollutants of concern or the nature of the test site makes it impractical to use them, other methods may be proposed as necessary.

While the specific items in the test plan will vary depending on the source and pollutants of interest, the following format should be utilized:

1) Identification and a brief description of the source to be tested. The description should include:
   a) Names, addresses, and contact information for the facility and consultant/personnel who will be performing the test. Expected test date(s).
   b) Type of industrial process or combustion facility.
   c) Type and quantity of raw and finished materials used in the process.
   d) Description of any cyclical or batch operations, which would tend to produce variable emissions with time.
   e) Basic operating parameters used to regulate the process.
   f) Rated capacity of the process. Process capacity can be demonstrated by calculating an average and maximum production rate using facility records. Based on these figures the facility shall include a production rate to be maintained during emission testing.

2) A brief description of any air pollution control equipment associated with the process:
   a) Type of control device.
   b) Operating parameters.
   c) Rated capacity and efficiency.
   d) Any maintenance activity on the air pollution control equipment within the last three months.

3) Applicable facility SRN, permit number and emission limits for the process to be tested.

4) Identify all pollutants to be measured.

5) Describe in detail the sampling and analysis procedures, including the applicable standard methods reference. Provide a description of the sampling train(s) to be used, including schematic diagrams if appropriate. Justify any proposed sampling or analytical modifications.

6) The number and length of sampling runs, which will constitute a complete test.

7) Dimensioned sketch showing all sampling ports in relation to breeching and to upstream and downstream disturbances or obstructions of gas flow.

8) Estimated flue gas conditions such as temperature, moisture, and velocity.

9) Projected process operating conditions during which the tests will be run (e.g., production rate). **These conditions should match the operating conditions stated in the facility's permit or facility operations shall be at the maximum routine operating conditions during the test.**

10) A description of any process or control equipment data to be collected during the test period. This should include any permit required information used to demonstrate the acceptable operations of emissions control processes and production rates.

11) A description of any monitoring data to be collected during the test period and subsequently reported (e.g., stationary continuous emission monitor data).

12) Field quality assurance/quality control (QA/QC) procedures (e.g., field blanks, sample storage, and transport methods) and chain of custody procedures.

13) Laboratory QA/QC procedures utilized as part of the testing (e.g., manner and frequency of blanks, spikes, and standards). This should include analysis of audit samples where required as a component of the approved test method.

If the source operates under a Renewable Operating Permit (ROP), certification by a responsible official, as defined in the Michigan Air Pollution Control Rule 336.1118(j), using the Renewable Operating Permit Certification (ROPC) form (EQP 5736), must be included with the test plan and cover letter. This form shall certify that the testing will be conducted in accordance with the attached test plan and that the facility will be operated in compliance with permit conditions or at the maximum routine operating conditions for the facility.

EMISSION TEST REPORTING

The emission test report should contain all pertinent data concerning the test program. In addition to reporting the results, it should include descriptions of the source, the sampling and analytical methodologies, the process operating conditions, and all raw field data, laboratory analytical data, and

calculation methods. Since the report will serve as evidence to both the agency and the source as a demonstration of the compliance status of the facility, it is important it be complete in content and adequate in quality. Its contents should be presented in an understandable and organized manner. **The information listed below shall be submitted to the appropriate AQD DO and the TPU** by the date specified in an applicable air use permit, consent order, consent judgment, or state or federal regulation. Otherwise, pursuant to the MDEQ Rule 1001(4), a complete test report shall be submitted to the AQD within 60 days following the last date of testing. In the event that the test report is not complete, additional information will be requested for submittal. If the information is not received following two written requests to the facility, the test results may be rejected by the AQD.

While the exact format of the report and the applicable information necessary will vary depending on the source and the pollutants of interest, the following format should be utilized.

1) Introduction:
   a) Identification, location, and dates of tests.
   b) Purpose of testing.
   c) Brief description of source.
   d) Names, addresses, and telephone numbers of the contacts for information regarding the test and the test report, and names and affiliation of all personnel involved in conducting the testing.

2) Summary of Results:
   a) Operating data (e.g., production rate, fuel type, or composition).
   b) Applicable permit number, State Registration Number (SRN), and Emission Unit ID or designation for the source.
   c) Results expressed in units consistent with the emission limitation applicable to the source, and comparison with emission regulations.

3) Source Description:
   a) Description of process, including operation of emission control equipment.
   b) Process flow sheet or diagram (if applicable).
   c) Type and quantity of raw and finished materials processed during the tests.
   d) Maximum and normal rated capacity of the process.
   e) A description of process instrumentation monitored during the test.

4) Sampling and Analytical Procedures:
   a) Description of sampling train(s) and field procedures.
   b) Description of recovery and analytical procedures.
   c) Dimensioned sketch showing all sampling ports in relation to breeching and to upstream and downstream disturbances or obstructions of gas flow.
   d) A sketch of cross-sectional view of stack indicating traverse point locations and exact stack dimensions.

5) Test Results and Discussion:
   a) Detailed tabulation of results including process operating conditions and flue gas conditions.
   b) Discussion of significance of results relative to operating parameters and emission regulations.
   c) Discussion of any variations from normal sampling procedures or operating conditions, which could have affected the results.
   d) Documentation of any process or control equipment upset condition, which occurred during the testing.
   e) Description of any major maintenance performed on the air pollution control device(s) during the three month period prior to testing.

f) In the event of a re-test, a description of any changes made to the process or air pollution control device(s) since the last test.
g) Results of any quality assurance audit sample analyses required by the reference method.
h) Calibration sheets for the dry gas meter, orifice meter, pitot tube, and any other equipment or analytical procedures, which require calibration.
i) Sample calculations of all the formulas used to calculate the results.
j) Copies of all field data sheets, cyclonic flow checks, including any pre-testing, aborted tests, and/or repeat attempts.
k) Copies of all laboratory data including QA/QC (e.g. blanks, spikes, standards).

If the source operates under an ROP, certification by a responsible official, as defined in the Michigan Air Pollution Control Rule 336.1118(j), using the ROPC form (EQP 5736), must be included with the emission test results and cover letter. This form shall certify that the testing was conducted in accordance with the approved test plan and that the facility operating conditions were in compliance with permit requirements or were at the maximum routine operating conditions for the facility.

Mailing Address for the Technical Programs Unit
Michigan Department of Environmental Quality
Air Quality Division
Technical Programs Unit
P.O. Box 30260
Lansing, MI 48909-7760

Street Address for Technical Programs Unit (needed for Federal Express, UPS, etc.)
Michigan Department of Environmental Quality
Air Quality Division – Technical Programs Unit
Constitution Hall, 2nd Floor, South
525 West Allegan Street
Lansing, MI 48933

FUEL PROCUREMENT AND MONITORING PLAN

L'ANSE WARDEN ELECTRIC COMPANY, LLC.
157 South Main Street
L'Anse, Michigan 49946

July 2016

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SECTION 1

INTRODUCTION

The L'Anse Warden Electric Company, LLC. (LWEC) Facility ("the Facility") is located in L'Anse, Baraga County, Michigan. The Facility operates under the State of Michigan Renewable Operating Permit (ROP) Number MI-ROP-B4260-2011 and Source-wide Permit to Install (PTI) MI-PTI-B4260-2011. The most recent PTI (168-07D) for the Facility was approved on 25 October 2012. [1]

The Fuel Procurement and Management Plant (FPMP) has been developed to satisfy the requirements of the air permitting for the Facility and to assure that only the fuels as allowed under the permitting outlined in **Section 2** of this document are burned in the Facility boiler (designated EUBOILER#1 in the air permit).

As specified in the air permit, the FPMP (the "Plan") addresses the following information:

- A description of fuel to be burned.
- Inspection and sorting procedures and protocol used to eliminate prohibited fuels and minimize unacceptable fuel.
- Procedures for rejecting and/or removing unacceptable fuel.
- Supplier qualification, processing and inspection procedures for each supplier of source separated fuel.
- Auditing procedures including records of fuel specification, load identification, quality control of load and fuel piles.
- Odor minimization.

The FPMP also details the methods and practices for evaluating alternative fuels to ensure compliance with permit limits.

[1] The Facility has submitted an application for a PTI to remove pentachlorophenol treated railroad ties as an authorized fuel and this plan has been developed on the assumption that such ties will no longer be used as fuel.

SECTION 2

FUEL MANAGEMENT PROCEDURES

Fuel for EUBOILER#1 is procured by independent fuel aggregation contractors and processed at the adjacent Fuel Aggregation Facility (FAF). The contract terms between the fuel aggregation contractors and LWEC identify procedures for inspecting and rejecting fuel due to non-conformance with specifications. The fuel aggregation contractor will maintain manifests for all fuels delivered to the FAF that identify the fuel source, weight, composition, and date of delivery. All fuels delivered to the Facility will be manifested for source identification, weight, composition, and date of delivery, whether the source is direct from a vendor or from the fuel aggregation contractor site.

Processed fuel is delivered to the Facility in covered self-unloading (walking floor) trucks or by pneumatic conveyor. With the exception of Tire Derived Fuel (TDF), fuel is unloaded into a receiving hopper near the fuel storage building. The TDF is delivered directly to the fuel storage building area and stored and metered separately. Fuels not meeting LWEC specifications are not accepted at the Facility and remain the responsibility of the fuel aggregation contractor.

The fuel storage building is covered and enclosed with access on one side through 3 separate overhead doors to allow filling by means of a front end loader in the event of an unloading hopper equipment failure. **Figure 1** provides a diagram of the Facility layout.

As designated in the permit, the fuels outlined in **Section 2.1** through **Section 2.5** below are allowed to be burned in EUBOILER#1. A summary of the acceptable fuels and applicable fuel limits is presented in **Table 1**.

The maximum annual heat input for EUBOILER#1, based on 8,200 hours per calendar year, is 2,656,800 MM Btu per calendar year. Fuel usage and quality will be monitored to assure compliance with this limitation.

Odor minimization will be accomplished by maintaining the fuel building and fuel unloading hopper in an enclosed status, with the exception of malfunctions, routine maintenance, inspection, and unloading of trucks. The fuel transfer conveyors are covered and intended to be enclosed in the future.

2.1 NATURAL GAS

During start up, natural gas will be used for fuel for EUBOILER#1. Other fuels will then be added. Natural gas may be periodically fired on a supplemental basis to stabilize combustion.

Natural gas use is limited to less than 50% of the annual heat input. The amount of natural gas (volume and heat input) will be monitored and recorded to demonstrate compliance with the permit limitations.

2.2 TIRE DERIVED FUEL

TDF consists of shredded tires processed at an off-site processing facility. This processing also includes the removal of foreign objects and some (but not all) metal.

2.2.1 Limits

TDF will be limited to 4.0 tons per hour (TPH), or 32,800 tons per year (TPY). The amount of TDF (by weight) will be monitored and recorded to demonstrate compliance with the permit limitations. Weights will be “as received”.

2.2.2 Specifications

TDF will be supplied to the aggregation contractor from several sources. The source suppliers will be licensed and permitted to operate in their State of origin. Requirements for processed TDF delivered to the Facility will include: shredded TDF only with an average size of 1-2 inches by visual inspection, TDF must only consist of small individual pieces (no “clumping” or “entanglement”), TDF may contain some wire. Whole tires or large pieces of rubber are unacceptable, and no foreign materials may be present within the TDF.

2.2.3 Quality Control Procedures

Quality Control procedures will be in place at the Facility to ensure the materials supplied meet the specified fuel requirements.

Any new source supplier of TDF will have the initial load visually inspected for proper specification. All subsequent loads will be visually spot checked.

Quality control at the Facility will include inspection of the TDF by visual inspection. Loads of TDF that are rejected will be documented to identify source supplier and reason for rejection.

Monthly samples will be collected and composited into a quarterly sample for laboratory analysis of sulfur, chlorine, and lead content. If after one year of sampling and analysis the mean of the analytes for the new samples in pounds per million British Thermal Units (lb/mmbtu) is below the 90 percent (%) confidence interval (CI) of the existing fuel analysis dataset, the sampling will transition to annual composites of quarterly samples. If the mean of the results in lb/mmbtu do not fall below the 90% CI, the monthly sampling for a quarterly composite will continue for an additional year and the statistical evaluation repeated.

2.3 RAILROAD TIES

(Creosote-treated) railroad ties are processed (ground) at the FAF. The aggregation contractor sorts, grinds, and screens the ties prior to delivering the material to the Facility. Processing also includes the removal of foreign objects and some (but not all) metal. In the past ground railroad ties have also been received via truck and railroad car.

2.3.1 Limits

Railroad ties will be limited to 20.1 TPH. The annual railroad tie limit will be 72,078 TPY. The amount of railroad ties (by weight) will be monitored and recorded to demonstrate compliance with the permit limitations. Note: the annual limit is less than the hourly limit times annual operating hours. Weights will be “as received”.

The acceptable chlorine content of the railroad ties will be limited to 400 parts per million (ppm). Compliance with the 400 ppm chlorine standard will be demonstrated using the fuel sampling and laboratory analysis procedures described below and in **Appendix A**.

2.3.2 Specifications

Railroad ties will be supplied from several sources to the aggregation contractor where they will be ground to a uniform consistency. The ties will be inspected prior to grinding in accordance with the process in **Appendix A**. Only ties that have creosote treatment are acceptable; pentachlorophenol (PCP)-treated wood is not accepted as fuel in solid or processed (ground) form. The aggregation contractor is required to segregate PCP-treated ties and not store them at the FAF so that only creosote-treated ties are delivered to and stored at the FAF. **Appendix A** contains the current contractor's Fuel Monitoring Plan to assure compliance with the Facility's specifications. [2]

2.3.3 Quality Control Procedures

Quality Control procedures will be in place to ensure the materials supplied meet the specified fuel requirements (refer to **Appendix A**). Under Appendix A, all whole ties brought to the FAF will have been from screened carloads or carloads manifested from sources known to be only creosote treated ties. Non-conforming ties are to be staged by the aggregation contractor outside the FAF for final disposition. Prior to receipt of ground railroad ties, a certification will be required from the supplier that they are only creosote-treated, from United States sources, and laboratory analysis data must be received verifying that the chlorine content of the processed material, sampled in accordance with 40 Code of Federal Regulations (CFR) Section 63.7521(c) and (d), is 400 ppm or less. This material, if received, would become part of the processed railroad tie fuel stream at the FAF and also be subject to the sampling and analysis described below.

[2] The aggregation contractor has advised LWEC that by the end of the 3rd Quarter of 2016 only non-pentachlorophenol treated ties will be in L'Anse by the aggregation contractor.

Quality control will further include visual inspection of the processed material to ensure proper consistency of the ground material and no foreign materials. Ground ties from the FAF will be visually spot checked at the Facility on a daily basis.

The aggregation contractor is required to specify to their suppliers that copper, chromium, and arsenic (CCA) compounds are unacceptable under this fuel category. The aggregation contractor has procedures to reject unacceptable materials (refer to **Appendix A**). CCA-treated ties are typically greenish in color. LWEC will do weekly audits of the FAF to visually observe what is being ground along with sampling as described herein.

Weekly samples will be collected for laboratory analysis following the sampling protocol in Section 3 of **Appendix A**. If after one month of sampling and analysis the mean of the analytes for the new samples in lb/mmbtu is below the 90% CI of the existing fuel analysis dataset, the sampling will transition to quarterly composites of monthly samples. If the mean of the results in lb/mmbtu do not fall below the 90% CI, the sampling intensity applicable at the time of analysis will continue for an additional month and the statistical evaluation repeated. All final reports received will be kept on site for five years.

2.4 WOOD CHIPS

Wood chips include primarily hardwood species that are received or processed into uniform chips at the aggregation facility. Wood chips also include waste products from the sawmill industry. No special processing will be required for this fuel source. Some softwoods are also included under the wood chip classification. Softwood and hardwood used as dimensional lumber that is free from bark and has not been painted or treated in any manner is included in this category but is not currently received. If receipt of construction and demolition material is intended in the future LWEC will submit a supplement to this plan for MDEQ approval. Wood chips will be supplied to the aggregation contractor from several sources. Processing includes the removal of metal and other foreign objects, where applicable.

2.4.1 Limits

Based on prior testing results, wood chips do not require a material limit. The amount of wood chips (by weight) burned will be monitored and recorded as required by the permit. Weights will be "as received".

2.4.2 Specifications

Wood chips will be derived from various clean wood sources. Examples include slash and chip screen residue derived from screening operations at local paper mills. The wood chips may be from a variety of tree species and will be of uniform consistency with an average size of 1-2 inches with a minimum of bark content.

2.4.3 Quality Control Procedures

Quality Control procedures will be in place at the FAF and the Facility to ensure that the materials supplied meet the specified fuel requirements. The FAF will be responsible for inspecting the source materials prior to chipping to verify that the materials meet the specifications in Section 2.4.2. The FAF will also be responsible for disposition of materials that do not meet the specification requirements. All wood chip source materials brought to the processing facility will be manifested to identify source supplier, weight, and date of delivery. Records will be kept for all rejected loads, the reason for the rejection, and the disposition of the rejected load.

Quality control will include inspection of the processed material at the Facility to ensure proper consistency of the chips and no foreign materials. Chipped wood materials from the processing facility will be visually spot checked at the Facility on a minimum weekly basis.

Monthly samples will be collected and composited into a quarterly sample for laboratory analysis of sulfur, chlorine, and lead content. If after one year of sampling and analysis the mean of the analytes for the new samples in lb/mmbtu is below the 90% CI of the existing fuel analysis dataset, the sampling will transition to annual composites of quarterly samples. If the mean of the results in lb/mmbtu do not fall below the 90% CI, the monthly sampling for a quarterly composite will continue for an additional year and the statistical evaluation repeated.

2.5 FINES/BARK

Fines/bark are waste products from the lumber and paper mill industries. Fines/bark normally consist of sawdust fines collected during the production process, and tree bark removed during the production process.

2.5.1 Limits

Fines/bark will be limited to 5.4 TPH. The annual limit for fines/bark will be 44,280 TPY. The amount of fines/bark (by weight) will be monitored and recorded to demonstrate compliance with the permit limitations. Weights will be “as received”.

2.5.2 Specifications

Fines/bark will be supplied to the aggregation contractor from several sources. The fines must be of a uniform consistency with no large slab waste included, the fines may be from various species of tree. The bark must be of a uniform consistency with no large slab waste included. Large pieces of bark are unacceptable, and must be processed by the aggregation contractor to achieve the proper size and consistency.

2.5.3 Quality Control Procedures

Quality Control procedures will be in place at the FAF and the Facility to ensure that the materials supplied meet the specified fuel requirements. The FAF will be responsible for the identification of fines/bark materials. The FAF will also be responsible for disposition of materials that do not meet the specification requirements. All fines/bark materials brought to the processing facility will be manifested to identify source supplier, weight, and date of delivery.

Quality control at the Facility will include inspection of the processed material to ensure proper consistency of the fines/bark and no foreign materials (fines/bark materials are normally discharged from mill operations by chain conveyors directly on to the ground, visual inspections must be made for excessive amounts of rocks, dirt, gravel, sand, etc). Loads of fines/bark materials from the processing facility will be visually spot checked at the Facility on a minimum weekly basis.

Monthly samples will be collected and composited into a quarterly sample for laboratory analysis of sulfur, chlorine, and lead content. If after one year of sampling and analysis the mean of the analytes for the new samples in lb/mmbtu is below the 90% CI of the existing fuel analysis dataset, the sampling will transition to annual composites of quarterly samples. If the mean of the results in lb/mmbtu do not fall below the 90% CI, the monthly sampling for a quarterly composite will continue for an additional year and the statistical evaluation repeated.

SECTION 3

PLAN IMPLEMENTATION AND MAINTENANCE

The FPMP will be adhered to by Facility personnel, and the Plan will be updated consistent with any changes in outlined procedures or practices. FPMP revisions will be submitted to the MDEQ AQD District Supervisor for review and approval.

Changes to fuel suppliers will not require revisions to the FPMP, provided the processed fuel continues to meet the definitions and specifications outlined in the Plan. Similarly, changes to the FPMP will not be required in the event new fuel aggregation contractors are utilized, provided the processes and procedures outlined in the FPMP remain in effect with the new contractor.

If alternative fuels are proposed for use at the Facility that do not meet the definitions listed in the FPMP, but analytical testing or other supplier data indicates the fuels meet the characteristics of the fuels outlined in the FPMP, a FPMP amendment will be submitted to the AQD District Supervisor for review and approval. The FPMP amendment will modify the definition of the fuel type to include the new alternative fuel.

If additional fuels are proposed for use at the Facility that are not defined in the FPMP and do not meet the characteristics of the fuels outlined in the plan, a modification to the FPMP and a new construction permit application will be required. The new fuel cannot be used at the Facility unless authorized by permit and a revised FPMP was submitted to the MDEQ AQD, and use of the additional fuel was approved by the AQD.

SECTION 4

MONITORING AND RECORDKEEPING

Fuel monitoring and record keeping will include the following:

1. Type and amount of each fuel burned in EUBOILER #1.
2. Sulfur, chlorine, and Lead (Pb) content of each fuel burned in EUBOILER #1.
3. Monthly and calendar year records of aggregate HAP emissions from EUBOILER #1.
4. Maximum heat input per calendar month and year for EUBOILER #1. Maximum heat input will be based on monthly totals.

In addition to monitoring and recordkeeping outlined above, both fuel analysis and stack testing will be used to demonstrate compliance with the permit requirements.

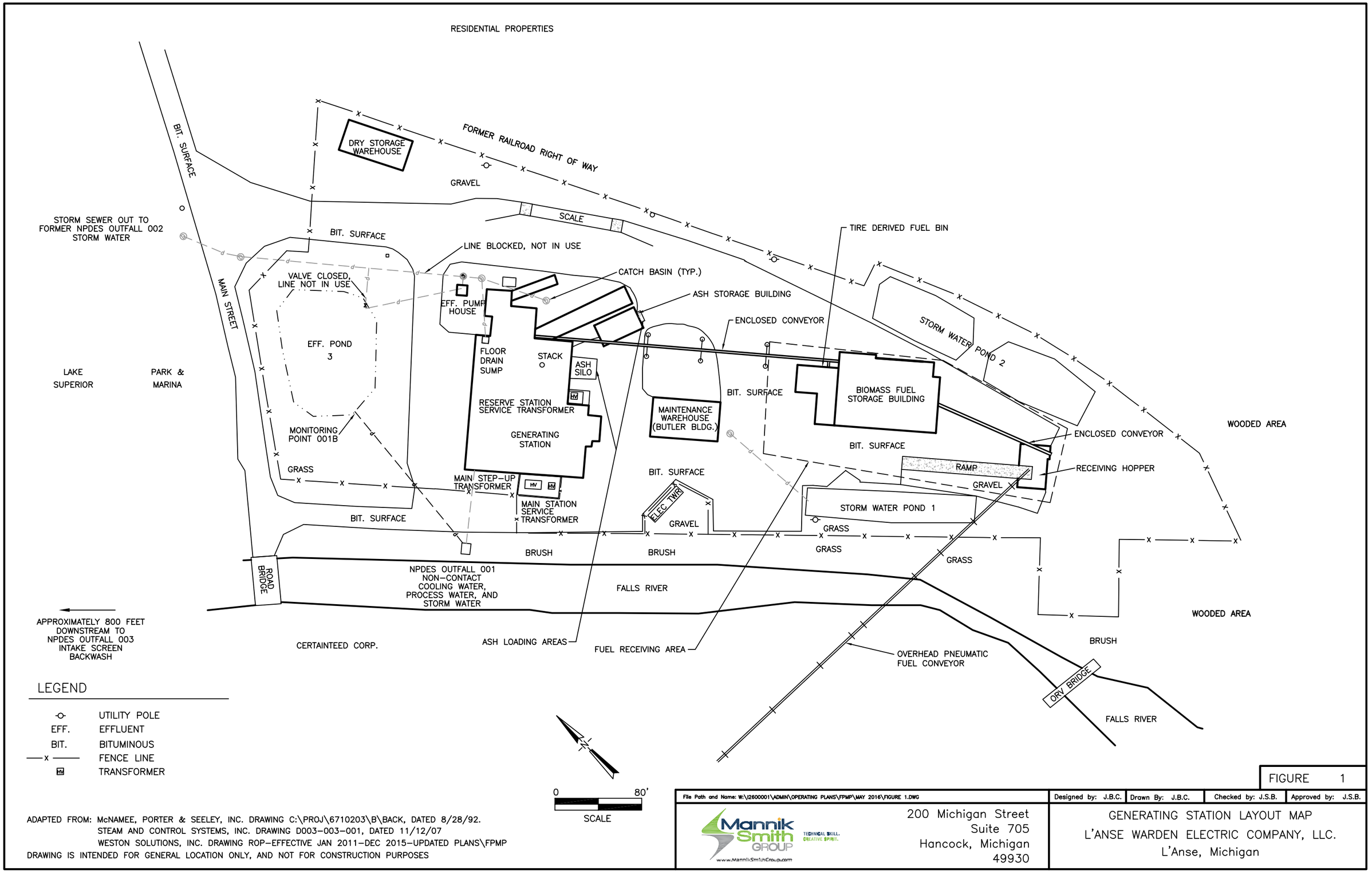
Fuel analysis and compliance demonstration calculations will be used to estimate sulfur dioxide (SO_2) and hydrogen chloride (HCl) emission rates for comparison to SO_2 and HCl emission limits. Fuel analyses results and the basis for the estimates of maximum chlorine fuel input and the corresponding HCl emission rates will be documented.

The permit requires keeping of the following information for EUBOILER#1:

Individual (lead and chlorine) and aggregate (tested and non-tested) HAP emissions calculations determining the monthly and annual emissions of each in tons per calendar year at the end of each calendar month, using emission factors from the compliance demonstration or most recent emissions testing, and MDEQ approved emission factors for the non-tested HAPs. These records will be maintained by Facility personnel and kept on file for a period of five years. Results of stack testing will also be maintained at the Facility for a period of at least five years.

Records will also demonstrate compliance with the daily average feed rate (TPH value from **Table 1**) and annual feed rate (TPY from **Table 1**). An hourly rate will be calculated by dividing the monthly total of each fuel received at the Facility by the total number of hours per month.

FIGURES



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STEAM AND CONTROL SYSTEMS, INC. DRAWING D003-003-001, DATED 11/12/07
WESTON SOLUTIONS, INC. DRAWING ROP-EFFECTIVE JAN 2011-DEC 2015-UPDATED PLANS\FPMP
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Designed by: J.B.C. | Drawn By: J.B.C. | Checked by: J.S.B. | Approved by: J.S.B.

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200 Michigan Street
Suite 705
Hancock, Michigan
49930

FIGURE 1

GENERATING STATION LAYOUT MAP
L'ANSE WARDEN ELECTRIC COMPANY, LLC.
L'Anse, Michigan

TABLES

Table 1 – Acceptable Fuel and Material Limits

Material	Limit	Time Period/ Operating Scenario
Natural Gas	Less than 50% of the annual heat input	Annual Capacity factor shall be based on a 12 month period as determined at the end of each calendar month
TDF	4.0 TPH[1]	Daily average, based on monthly records
	32,800 TPY[1]	Annual, as determined at the end of each calendar month
Rail Road Ties	20.1 TPH[1]	Daily average, based on monthly records
	72,078 TPY[1]	Annual, as determined at the end of each calendar month
Wood Chips	No Limit	Not Applicable
Fines & Bark	5.4 TPH[1]	Daily average, based on monthly records
	44,280 TPY[1]	Annual, as determined at the end of each calendar month

Notes:

1 = As received.
All annual limits are per 12 month period, as determined at the end of each calendar month.
All hourly limits are based on monthly averages (i.e. (monthly fuel useage)/(number of days per month)/(24 hours per day)).
MM = Million
TDF = Tire Derived Fuel
TPH = Tons per Hour
TPY = Tons per Year
Yr = year

APPENDIX A

FUEL MONITORING PLAN

L'Anse Warden Electric Company, LLC – L'Anse, Michigan

Prepared For:

M.A. ENERGY RESOURCES, LLC

M.A. ENERGY RESOURCES, INC.
9225 INDIAN CREEK PARKWAY, SUITE 670
OVERLAND PARK, KS 66210

Prepared By:

ALL4

3370 Chastain Gardens Drive
Suite 220
Kennesaw, GA 30144

July 2016
Version 3.0

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1. INTRODUCTION

M.A. Energy Resources, LLC (MAER) processes creosote-treated railroad ties (CTRT) for delivery to the L'Anse Warden Electric Company, LLC (LWEC) in L'Anse, Baraga County, Michigan. MAER solely operates a Fuel Aggregation Facility (FAF) adjacent to the LWEC power plant where fuels are stored and processed in the FAF yard. The FAF is established on property owned by CertainTeed and occupied under license granted to LWEC. MAER has fuel storage capabilities on property which MAER occupies on its own account under agreement with Verso Paper. This location is referenced as the MAER yard. Ownership of the CTRT is transferred to LWEC after it is processed into a fuel and delivered to the power plant. In addition, MAER handles wood (chips) purchased by LWEC that are conveyed to the power plant. Finally, M.A. Associates, Inc. (MAA) and other suppliers handle tire derived fuel (TDF) and supply it directly to the LWEC power plant as well.

The purpose of this Fuel Monitoring Plan is to establish internal fuel sampling and monitoring procedures for MAER to assist LWEC with meeting its air permit and related air quality regulatory requirements. LWEC currently operates in accordance with a Renewable Operating Permit (ROP) (Permit Number MI-ROP-B4260-201 and PTI No. 168-07D) issued by the Air Quality Division (AQD) of the Michigan Department of Environmental Quality (MDEQ). MAER has developed this Fuel Monitoring Plan to evaluate the chlorine content in the fuels provided by MAER to LWEC so that LWEC can ensure continuous compliance with the hydrogen chloride (HCl) emissions limit for Boiler #1 (EU-BOILER#1 in the ROP). Concurrent with the development of MAER's Fuel Monitoring Plan, LWEC has updated their Fuel Monitoring and Procurement Plan to reflect MAER's internal fuel monitoring procedures

This Version 3.0 of the MAER Fuel Monitoring Plan primarily reflects changes to the handling of railroad tie fuel from previous versions of the Fuel Monitoring Plan. Specifically, MAER as of June 21, 2016 no longer receives pentachlorophenol treated railroad ties (PCPRT). In addition, MAER no longer receives railcars containing creosote-treated railroad ties from other Canadian sources. Furthermore, CTRT that may be rejected as a result of preliminary Cl screening will not

be processed or stored at either the FAF or the MAER yard. MAER will have procedures in place to ensure the expeditious shipping of all rejected railroad ties as of September 13, 2016.

1.1 PERMIT LIMITS

As summarized in Table 1-1 below, LWEC'S ROP contains the following operational, and fuel throughput limits for Boiler #1:

Table 1-1
Boiler Operating Limits by Fuel

Material	Limit	Time Period/Operating Scenario
Natural Gas	Less than 50% of the annual heat input	Annual capacity factor shall be based on a 12-month period as determined at the end of each calendar month
TDF	4.0 tph[(a)]	Daily average, based on monthly records
	32,800 tpy[(a)]	Annual, as determined at the end of each calendar month
Rail Road Ties	20.1 tph[(a)]	Daily average, based on monthly records
	72,078 tpy[(a)]	Annual. as determined at the end of each calendar month
Wood Chips	No Limit	
Fines and Bark	5.4 tph[(a)]	Daily average, based on monthly records
	44,280 tpy[(a)]	Annual, as determined at the end of each calendar month

Notes:
(a) = As received.
All annual limits are per 12-month period, as determined at the end of each calendar month.
All hourly limits are based on monthly averages (i.e., (monthly fuel usage)/(number of days per month)/(24 hours per day)).
MM = Million
TDF - Tire Derived Fuel
tph = Tons per Hour
tpy = Tons per year
y = Year

1.2 CONTACTS

MAER personnel will perform the fuel monitoring outlined in this plan. Analysis of the samples will be done by contracted analytical laboratories chosen by MAER. The MAER and laboratory points of contact are listed in Table 1-2 below.

Table 1-2
Fuel Monitoring Plan Contacts

Owner/Operator	**M.A. Energy Resources, LLC** 9225 Indian Creek Parkway Suite 670 Overland Park, KS 66210	**Point of Contact:** Adam Barksdale Director of Plant Operations (913) 201-3529 abarksdale@maenergyresources.com
Laboratory	**Wood, CTRT, and TDF Samples** **ALS Life Sciences Division** **Environmental** 3860 S. Palo Verde Rd., Suite 302 Tucson, AZ 85714 USA	**Point of Contact:** Ralph V. Poulsen Laboratory Director (520) 623-8501 Ralph.Poulsen@alsglobal.com

2. FUEL HANDLING PROCEDURES

MAER secures fuel from multiple sources. MAER receives whole creosote-treated railroad ties on-site and then further processes them by grinding, screening, and enhancing the fuel characteristics by removing metal (e.g., metal end plates and "S" irons) to a customer fuel specification prior to conveying them to LWEC. MAER may store CTRT prior to processing. Clean wood from multiple suppliers is staged at the FAF without further processing before delivery to LWEC. TDF is delivered directly to LWEC by MAA and is not further processed at the MAER site.

2.1 CURRENT FUEL PROCESSING OPERATIONS FOR RAILROAD TIES

As of June 21, 2016 MAER only receives railroad ties via railcars from U.S.-based suppliers comprising railroad ties known to be only CTRT. Railroad ties from Canadian suppliers will not be accepted at the FAF or the MAER yard.

U.S. railroad ties are removed from the railcars by a grappling hook. A sample of the railroad ties (between approximately one and five percent depending on the size of the railcar load) then undergo preliminary screening for chlorine content to confirm that the received railroad ties do not have elevated chlorine levels (i.e. chlorine levels of 400 parts per million – ppm or less are acceptable). MAER will conduct screening of U.S. railroad ties for elevated levels of chlorine by testing the first 100 ties that are received from railroad subdivisions for which there are no pre-existing screening data for chlorine concentration levels. MAER will track the subdivision origin (i.e., the geographic location designation used by the railroads to identify specific sections of railroad track) of railroad tie shipments delivered for processing to LWEC. Samples of subsequent railcar loads will be screened at a rate between approximately one and five percent of received railroad ties depending on the size of the railcar load. Once the preliminary screening confirms acceptable chlorine levels, the railroad ties are then staged together in a dedicated area for processing followed by conveying to a storage bin located at the LWEC. A weekly random sample of the ground railroad ties undergoes analytical testing for chlorine content as described in Section 3 of this plan.

If screening testing of U.S. railroad ties indicates elevated chlorine levels (i.e., analytical reading levels above 400 parts per million of chlorine), MAER will amend the Fuel Monitoring Plan to address an increase in screening for U.S. railroad ties from the specific railroad subdivision. Railroad ties with screening levels greater than 400 ppm will not be processed and will be temporarily stored at the MAER yard prior to shipment offsite.

As MAER receives and handles railroad ties, recordkeeping is conducted. Specifically MAER maintains records of how processed railroad ties are stored (e.g., covered or within a storage building). An example of the MAER's storage tracking records for processed CTRT is provided in Appendix A. It should be noted that since only CTRT is processed, the storage tracking applies only to CTRT.

2.2 LEGACY RAILROAD TIES RECEIVED PRIOR TO JUNE 21, 2016

As noted beginning on June 21, 2016, no shipment of railcars from Canadian suppliers have been accepted by MAER. However, legacy railroad ties received from Canadian suppliers prior to June 21, 2016 are still on site and will be screened for acceptance. All legacy railroad ties will be screened against the 400 ppm chlorine threshold and those railroad ties below this threshold will be processed for LWEC. Any legacy railroad ties that do not meet the screening threshold will not be processed and will be shipped offsite. MAER has established September 13, 2016 as the date after which no legacy ties will be stored at either the MAER yard or the FAF.

2.3 XRF SCREENING

MAER employs X-ray Fluorescence (XRF) technology as a screening tool to detect chlorine levels in railroad ties prior to processing and then delivery to LWEC. MAER performs the screening to establish an initial assessment of acceptable chlorine content in CTRT, as the amount of chlorine in the fuels used by LWEC is directly related to the HCl emissions from Boiler #1. XRF technology works by atoms of the sample absorbing energy from X-rays, temporarily exciting the atoms and emitting secondary X-rays. Each chemical element emits X- rays at a unique energy level.

MAER uses a hand-held XRF analyzer [Olympus Innov-X DP-4000 unit (or similar)] that is either factory or site calibrated to screen for chlorine content of the railroad ties. Literature reviews and recent data obtained by MAER during a field calibration study conducted in November 2015 using the XRF analyzer has established a correlation between the chlorine content of railroad ties from analytical data and the response of the XRF analyzer. MAER has correlated the analytical data and the XRF analyzer response based on calibration curves provided by the analyzer manufacturer and/or site-specific calibrations.

Based on results obtained to date, MAER will implement the following procedures to screen CTRT. Screening for chlorine with the XRF analyzer will routinely be performed on the first 100 ties originating from a railroad subdivision for which no previous screening data are available. As noted in Section 2-2, all legacy ties received from Canadian suppliers prior to June 21, 2016 will be screened with the XRF analyzer.

- Railroad ties with an XRF analyzer response of 1,600 ppm or greater will be rejected by MAER. The 1,600 ppm threshold is based on data MAER collected in 2015 to support LWEC. This screening level will be adjusted as necessary based on subsequent factory calibrations and/or field calibrations as the fuel monitoring program is implemented. Calibration of the XRF analyzer will be performed on a schedule recommended by the manufacturer or more frequently as determined by MAER.
- Railroad ties with an XRF analyzer response less than 1,600 ppm are CTRTs and will be processed for LWEC.
- Railroad ties from railroad subdivisions not previously screened will be screened with the XRF analyzer. The first 100 ties from a railroad subdivision will be screened against a 1,600 ppm threshold. Increased screening will be performed for railroad ties from specific subdivisions if readings exceed 1,600 ppm via the XRF analyzer.
- LWEC may conduct additional sampling of all of the fuels at LWEC's expense and per LWEC's schedule.

The XRF screening data will be used in conjunction with the fuel sampling data (refer to Section 3 of this plan) to refine the screening techniques described above.

2.4 LWEC FUEL HANDLING OPERATIONS

MAER provides alternate fuels to LWEC via pneumatic delivery and occasional direct delivery via truck. MAER will process and then pneumatically transfer CTRT to LWEC. Prior to transferring the CTRT fuel, screening, processing and handling of the CTRT fuel will be conducted

to provide fuel with chlorine levels below a threshold of 1,600 ppm (equivalent to a 400 ppm based on laboratory analytical testing data). The wood that is supplied to MAER is also pneumatically conveyed from MAER to LWEC. As noted TDF fuel is delivered directly by MAA and other contractors to LWEC.

3. SAMPLING LOCATIONS AND METHODS

MAER will follow the solid fuel sampling methods contained in the National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters, also referred to as the Boiler MACT rule, for the purposes of this plan. These methods are specified in 40 CFR §§63.7521(c) and (d). The sections below describe MAER's fuel sampling program for the fuels provided to LWEC.

3.1 SUMMARY OF SAMPLING LOCATIONS AND METHODS

A sample will be obtained for each fuel on at a preset frequency as described below and then composited into a sample that will be sent to a laboratory for analysis. Fuel sampling will be conducted by MAER personnel in accordance with the methods described herein. Table 3-1 below identifies the locations and sampling methods to be used.

Table 3-1
Fuel Sampling Locations and Methods

Fuel	Sampling Location	Sampling Method
Wood Chips	Sampled from the wood pile located at the FAF or MAER yard site	§63.7521(c)(2) and §63.7521(d) See Section 3.2.1 for details.
CTRT	Sampled from the processed CTRT storage pile at the FAF or MAER yard site	§63.7521(c)(2) and §63.7521(d) See Section 3.2.1 for details.
TDF	Sampled from the TDF storage pile located at the LWEC site	§63.7521(c)(2) and §63.7521(d) See Sections 3.2.2 and 3.2.2.1 for details.

As shown in Table 3-1, sampling methods are those specified in §63.7521(c) and (d) of the rule or described in detail within this plan. A brief discussion of the proposed sampling methods is provided in the following subsections. MAER may incorporate other sampling methods that are mutually agreed upon between MAER and LWEC.

3.2 SOLID FUEL SAMPLING METHODS

The following sections describe the MAER procedures for sampling solid fuels. The sampling methods for processed CTRT are implemented on a weekly basis (initially). The sampling methods for wood chips and TDF (and eventually CTRT) are designed to collect a monthly sample of each fuel that is subsequently composited into a quarterly sample of each fuel for analysis.

3.2.1 Wood Chips and Processed CTRT Sampling Procedures

The following fuels will be sampled from their respective storage pile on a weekly (CTRT) and monthly (wood chips) basis via a single grab sample. To minimize moisture loss from the sample, the weekly and monthly samples will be stored in an air tight sampling bag.

- Wood chips
- Processed CTRT

The applicable procedure for collecting fuel samples from a pile follow §63.7521(c)(2):

(1) Notify the LWEC operator that a sample will be collected.
(2) For each weekly/monthly sample, select a sampling location at the surface of the pile. The sample should be collected from the portion(s) of the pile that are most likely to be used as fuel (i.e., "fresh" sections of the pile; samples should not be collected from portions of the pile that have been on site for several months and are not likely to be used as fuel). Samples will be collected from dedicated piles of the wood chips or processed CTRT.
(3) At the sampling site, dig into the pile to a uniform depth of approximately 18 inches. Insert a clean shovel into the hole and withdraw a sample, making sure that large pieces do not fall off during sampling.
(4) Transfer the samples to a clean plastic bag for further processing. Seal and label the bag with the following information:
    a. Fuel Type (i.e., Wood Chips or processed CTRT).
    b. Date and Time of Sample.
    c. Sample Technician Initials.
(5) Notify the LWEC operator when sampling is complete.
(6) Fill out the chain of custody to document the prepared samples. The chain of custody will need to be initiated by the technician that obtained the samples, and the technician that prepared the samples, if prepared by a different individual.
(7) Notes for the chain of custody (An example of the chain of custody is found in Appendix A.):
    a. Sample ID should consist of fuel type and week/month/quarter/calendar year.

b. Complete the Analysis Requested portion of the form using the methods specified in Table 4-1 of this plan.
c. Technician that collected and prepared the sample should sign the chain of custody in the first "Relinquished by" section block of the form.
d. It is not necessary to complete a new chain of custody for each weekly/monthly sample, the first chain of custody form can be supplemented with the subsequent weekly or monthly sample information.

3.2.1.1 Compositing Wood Chips and Processed CTRT Fuel Samples

The weekly processed CTRT samples will not be composited. The monthly wood chip (and eventually CTRT) samples will be composited into respective samples for processed CTRT and for wood chips, to be analyzed on a quarterly basis. A composite sample will be generated separately for wood chips and processed CTRT according to the procedure from §63.7521(d) as follows:

(1) Thoroughly mix each monthly sample bag and pour the monthly samples into a common pile over a clean plastic sheet. Create a composite sample by mixing the pile thoroughly.
(2) Break sample pieces larger than three (3) inches into smaller sizes.
(3) Make a pie shape with the entire composite sample and subdivide it into four (4) equal parts.
(4) Separate one (1) of the quarter samples as the first subset (for analyses). If this subset is too large for the shipping container, repeat the procedure in Step (3) of this section with the quarter sample and obtain a one-quarter subset from this sample.
(5) Place this subset into the composite sample bag and label with the following as appropriate:
    (a) Fuel Type.
    (b) Weeks, month, quarter, and calendar year (e.g., Weeks 1-5, January, first quarter 2016).
    (c) MA Energy Resources.
(6) This subset will be shipped to the contract lab for analyses. Fill out the chain of custody to be shipped with the prepared samples. The chain of custody will need to be initiated by the technician that obtained the samples, and the technician that prepared the samples, if prepared by a different individual.
(7) Separate another of the quarter samples (from the quartered pie discussed in Step 4) for each composite and place into another bag. This sample will be retained as a duplicate sample for the fuel sample and stored on-site at MAER. The duplicate samples will be labeled and analyzed just as the samples above in Step 5, with the exception that these samples will be marked as "Duplicate Composite."
(8) Each quarter (after the initial weekly sampling), there should be two samples, a composited processed CTRT sample for analysis and a duplicate processed CTRT sample. Each quarter, a composited wood chip sample for analysis and a duplicate wood

chip sample will be prepared. The duplicate samples should be held for retention on-site until laboratory results are reviewed and accepted. After the laboratory results are reviewed and accepted the duplicate samples can be discarded.

(9) Notes for the chain of custody for the composite sample (An example of the chain of custody is found in Appendix A.):
   (a) Sample ID should consist of fuel type and weeks/month/quarter/calendar year.
   (b) Complete the Analysis Requested portion of the form using the methods specified in Table 4-1 of this plan.
   (c) Technician that collected and prepared the sample should sign the chain of custody in the first "Relinquished by" section block of the form.
   (d) The weekly/monthly chain of custody forms do not need to be included with the composite chain of custody form.

(10) Ship each sample in a clean plastic bag in a clean 5 gallon plastic bucket.

3.2.2 TDF Sampling Procedures

The TDF fuel will be collected from the LWEC site. An MAER operator will utilize the following procedure for obtaining a TDF sample each month. The monthly samples will subsequently be composited quarterly:

(1) Notify the LWEC operator that a sample will be collected.
(2) For each sample, select a minimum of five (5) sampling locations uniformly spaced over the surface of the pile. The samples should be collected from the portion(s) of the pile that are most likely to be used as fuel (i.e., "fresh" sections of the pile; samples should not be collected from portions of the pile that have been on site for several months and are not likely to be used as fuel).
(3) At each sampling site, dig into the pile to a uniform depth of approximately 18 inches. Insert a clean shovel into the hole and withdraw a sample, making sure that large pieces do not fall off during sampling. Use the same shovel to collect all samples.
(4) Transfer all samples to a clean plastic bag for further processing. Weigh the sample to confirm a sample size of at least 10 pounds. Label the bag with the following information:
   a. Fuel Type: TDF.
   b. Date and Time of Grab Sample.
   c. Sample Technician Initials.
(5) Notify the LWEC operator when sampling is complete.
(6) A clean sample bag should be used for each weekly TDF sample
(7) Fill out the chain of custody to document the prepared samples. The chain of custody will need to be initiated by the technician that obtained the samples, and the technician that prepared the samples, if prepared by a different individual.
(8) Notes for the chain of custody (An example of the chain of custody is found in Appendix A.):
   a. Sample ID should consist of fuel type and week/month/quarter/calendar year.

b. Complete the Analysis Requested portion of the form using the methods specified in Table 4-1 of this plan.
c. It is not necessary to complete a new chain of custody for each weekly sample, the first chain of custody form can be supplemented with the subsequent weekly sample information.

(9) Technician that collected and prepared the sample should sign the chain of custody in the first "Relinquished by" section block of the form.

3.2.2.1 Compositing TDF Fuel Samples

The monthly TDF samples will be composited into one (1) sample to be analyzed on a quarterly basis. A composite sample will be generated according to the procedure from §63.7521(d) as follows:

(1) Thoroughly mix each monthly sample bag and pour the three samples into a common pile over a clean plastic sheet. Create a composite sample by mixing the pile thoroughly.
(2) If possible break sample pieces larger than three (3) inches into smaller sizes.
(3) Make a pie shape with the entire composite sample and subdivide it into four (4) equal parts.
(4) Separate one (1) of the quarter samples as the first subset (for analyses). If this subset is too large for grinding, repeat the procedure in Step (3) of this section with the quarter sample and obtain a one-quarter subset from this sample. If the quarter sample is too large, subdivide it further using the same procedure.
(5) Place this subset into the composite sample bag and label with the following:
    (a) Fuel Type.
    (b) Weeks, quarter and calendar year (e.g., Weeks 1-13, First quarter 2016).
    (c) MA Energy Resources.
(6) This subset will be shipped to the contract lab for analyses. Fill out the chain of custody to be shipped with the prepared samples. The chain of custody will need to be initiated by the technician that obtained the samples, and the technician that prepared the samples, if prepared by a different individual.
(7) Separate another of the quarter samples (from the quartered pie discussed in Step 4) for each composite and place into another bag. This sample will be retained as a duplicate sample for the fuel sample and stored on-site at MAER. The duplicate samples will be labeled and analyzed just as the samples above in Step 5, with the exception that these samples will be marked as "Duplicate Composite."
(8) Each quarter, there should be a composited TDF sample prepared for shipment and one (1) duplicate sample for retention on-site. The duplicate sample may be discarded after laboratory results are reviewed and approved.
(9) Notes for the chain of custody for the composite sample (An example of the chain of custody is found in Appendix A.):
    (a) Sample ID should consist of fuel type and months/quarter/calendar year.

(b) Complete the Analysis Requested portion of the form using the methods specified in Table 4-1 of this plan.
(c) Technician that collected and prepared the sample should sign the chain of custody in the first "Relinquished by" section block of the form.
(d) The weekly chain of custody forms do not need to be included with the composite chain of custody form.

(10) Ship the clean plastic bag in a clean 5 gallon plastic bucket.

The contract laboratory (ALS) will be responsible for grinding the sample to perform the analysis. The need for grinding should be indicated in the Special Instructions/Comments section in the chain of custody form.

4. SUMMARY OF METHODS AND DETECTION LIMITS

MAER will contract with an independent laboratory to analyze samples collected in accordance with this plan. Table 4-1 summarizes the analytical methods to be used as well as the nominal detection levels associated with the method for chlorine. The results will be provided to LWEC in a timely manner.

Table 4-1
Analytical Methods and Detection Limits

Fuel Type	Required Analysis	Analytical Methods	Expected Minimum Detection Level
TDF (ALS)	Ash Content/ Sulfur Concentration	ASTM D6700-01, *"Standard Practice for Use of Scrap Tire-Derived Fuel"*	Not Applicable (ash) 0.02 weight % (Sulfur)
	Heat Content	ASTM D5865, *"Standard Test Method for Gross Calorific Value of Coal and Coke"*	Not Applicable
	Moisture Content	ASTM D3173, *"Standard Test Method for Moisture in the Analysis Sample of Coal and Coke"*	Not Applicable
	Chlorine Concentration	SW-846-9056, *"Determination of Inorganic Anions by Ion Chromatography"*	2.0 ppm
Wood Chips and Processed CTRT (ALS)	Ash Content	ASTM E1755-01, *"Standard Test Method for Ash in Biomass"*	Not Applicable
	Heat Content	ASTM E711, *"Standard Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter" (for Bark)* ASTM D5865, "*Standard Test Method for Gross Calorific Value of Coal and Coke" (for all other fuels)*	Not Applicable
	Moisture Content	ASTM D3173, "*Standard Test Method for Moisture in the Analysis Sample of Coal and Coke"*	Not Applicable
	Chlorine Concentration	SW-846-9056, *"Determination of Inorganic Anions by Ion Chromatography"*	50.0 ppm

Table 4-1
Analytical Methods and Detection Limits

Fuel Type	Required Analysis	Analytical Methods	Expected Minimum Detection Level
	Sulfur Concentration	ASTM D4239, *"Standard Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion"*	0.02 weight %

5. DETERMINATION OF FUEL CHARACTERISTICS

The resulting data from the fuel sampling analysis can be utilized to determine the characteristics specified in the subsections below in the fuel types or fuel mixtures burned in Boiler #1. MAER will provide these fuel data in a spreadsheet tool to assist LWEC with estimating the HCl emissions from the fuel mixtures fired in Boiler #1 using the equations below.

5.1 CHLORINE FUEL INPUT

Using the methods outlined in §63.7530(b)(1), the maximum chlorine fuel input, Clinput, is determined by applying equation 7 of the Boiler MACT rule to the fuel data. Equation 7 is as follows:

$$Clinput = \sum_{i=1}^{n} (Ci\ x\ Qi)$$

In equation 7 above, Clinput is the amount of chlorine fired in the boiler through fuels burned in units of lb/MMBtu. The "n" represents the number of different fuel types fired in Boiler #1. Ci is the arithmetic average concentration of chlorine in each individual fuel type, analyzed according to §63.7521, in units of lb/MMBtu, and Qi is the fraction of total heat input from the individual fuel.

5.2 ASH CONTENT

Using the methods outlined in §63.7530(b)(1), the maximum ash content of the fuel mixture, ASHinput, is determined by applying the methodologies of equation 7 of the Boiler MACT rule to the fuel data. The modified equation 7 is as follows:

$$ASHinput = \sum_{i=1}^{n} (Ai\ x\ Qi)$$

In modified equation 7 above, ASHinput is the ash content of the fuel mixture fired in Boiler #1. The "n" represents the number of different fuel types burned in the boiler. Ai is the arithmetic average ash content in each individual fuel type, and Qi is the fraction of total heat input from the individual fuel.

5.3 BTU CONTENT

Using the methods outlined in §63.7530(b)(1), the fuel mixture Btu value, Btuinput, is determined by applying the methodologies of equation 7 of the Boiler MACT rule to the fuel data. The modified equation 7 is as follows:

$$Btuinput = \sum_{i=1}^{n} (Bi\ x\ Qi)$$

In modified equation 7 above, Btuinput is the Btu value of the fuel mixture fired in Boiler #1. The "n" represents the number of different fuel types burned in the boiler. Bi is the arithmetic average Btu value in each individual fuel type, and Qi is the fraction of total heat input from the individual fuel.

5.4 MOISTURE CONTENT

Using the methods outlined in §63.7530(b)(1), the fuel mixture moisture content, Moistureinput, is determined by applying the methodologies of equation 7 of the Boiler MACT rule to the fuel data. The modified equation 7 is as follows:

$$Moistureinput = \sum_{i=1}^{n} (Mi\ x\ Qi)$$

In modified equation 7 above, Moistureinput is the moisture content of the fuel mixture fired in Boiler #1. The "n" represents the number of different fuel types burned in the boiler. Mi is the arithmetic average moisture content in each individual fuel type, and Qi is the fraction of total heat input from the individual fuel.

5.5 SULFUR CONTENT

Using the methods outlined in §63.7530(b)(1), the maximum sulfur fuel input, Sinput, is determined by applying the methodologies of equation 7 of the Boiler MACT rule to the fuel data. The modified equation 7 is as follows:

$$Sinput = \sum_{i=1}^{n} (Si\ x\ Qi)$$

In modified equation 7 above, Sinput is the sulfur concentration of the fuel mixture fired in Boiler #1. The "n" represents the number of different fuel types burned in the boiler. Si is the arithmetic average sulfur concentration in each individual fuel type, and Qi is the fraction of total heat input from the individual fuel.

6. RECORDKEEPING

MAER will maintain fuel sampling analytical results at its corporate office, and will provide a copy of the composited monthly, composited quarterly, and other appropriate analytical results to LWEC. These records will be maintained on-site for a period of five (5) years. MAER will track the lab results and provide a Microsoft Excel based worksheet that LWEC can utilize in electronic format to assess chlorine levels in its fuel mixtures.

APPENDIX A – EXAMPLES OF RECORD KEEPING FORMS

M.A. ENERGY RESOURCES, LLC

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

SR #

Lab Contact

Lab contact information

Page _____ of _____

Project Name	Project Number
Report To	Report CC
Company/Address	
Phone #	FAX #
Sampler's Signature	Sampler's Printed Name

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

Preservative

NUMBER OF CONTAINERS

Preservative Key
1. None
2. HCL
3. HNO3
4. H2SO4
5. NaOH
6. Zn. Acetate
7. MeOH
8. NaHSO4

REMARKS

CLIENT SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	Matrix

Special Instructions/Comments:

TURNAROUND REQUIREMENTS

____ RUSH (SURCHARGES APPLY)
____ STANDARD

REQUESTED FAX DATE

REQUESTED REPORT DATE

REPORT REQUIREMENTS

____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION

P.O. # _____

Bill to: _____

Relinquished By	Received By	Relinquished By	Received By	Relinquished By	Received By
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
Firm	Firm	Firm	Firm	Firm	Firm
Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

Processed Creosote Treated Crossties Tracking Form
Outdoor Material Storage
MAER Fuel Monitoring Plan for the L'Anse Warden Electric Company, LLC.

Date	Processed Creosote Treated Crossties Stored Outside Of Storage Building (Y/N)	If Yes, Is The Processed Creosote Treated Crossties Pile Covered (Y/N)	Recorded By (Provide Initials)

Note: Complete form at the beginning of the day. Retain this sheet and a copy on-site and MAER corporate offices.

FUGITIVE EMISSIONS CONTROL PLAN

L'ANSE WARDEN ELECTRIC COMPANY, LLC.
157 South Main Street
L'Anse, Michigan 49946

July 2016

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SECTION 1

INTRODUCTION

The L'Anse Warden Electric Company, LLC. (LWEC) Facility ("the Facility") is located in L'Anse, Baraga County, Michigan. The Facility is a biomass-fired electric generating facility. The standard industrial classification (SIC) code for the Facility is 4931. The Facility consists of the Generating Station and a Fuel Aggregation Facility (FAF). Refer to **Figure 1**. The Facility is operating under the State of Michigan Renewable Operating Permit (ROP) Number MI-ROP-B4260-2011.

This Fugitive Emissions Control Plan (FECP) has been prepared to document LWEC's fugitive emission control program. The FECP covers activities where fugitive emissions could potentially occur without the use of proper dust prevention methods including the fuel storage, processing, and handling areas, ash handling area, and Facility roadways. The plan addresses the requirements outlined in Rules 371 and 372 (R 336.1371 and R 336.1372) of the Michigan Air Pollution Control Rules and Section 324.5524, Part 55 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

A copy of the FECP is maintained at the Facility. The fugitive emissions control records will be maintained at the Facility for a period of at least five years and will be made available to the Michigan Department of Environmental Quality (MDEQ) Air Quality Division (AQD) upon request.

Employees and contractors involved in the activities covered by the FECP are trained on the monitoring and control procedures outlined herein.

SECTION 2

POTENTIAL SOURCES OF FUGITIVE DUST

2.1 FUEL STORAGE, PROCESSING, AND HANDLING

Biomass fuels include wood chips, ground railroad ties, and wood fines and bark. Additionally, tire derived fuel (TDF) is used as a fuel. With the exception of railroad ties, fuel is processed off-site. Railroad ties are temporarily stored at the FAF prior to processing. All fuels are delivered by truck or pneumatic conveyor/blower to the Generating Station's fuel receiving area (**Figure 2**). Wood chips, processed railroad ties, and wood fines and bark are generally temporarily stored at the FAF (**Figure 3**) prior to delivery to the Generating Station. The fuels are transferred from the fuel receiving area at the Generating Station to a conveyor that elevates and transports the fuel to the existing boiler area within the Facility.

Fuel handling activities that have the potential to produce fugitive dust include processing of railroad ties, unloading of the biomass fuels, stockpiling of biomass material, transport of the material within the FAF or to the Generating Station, and conveying the fuel from the storage area to the boiler.

Section 3.1 details the engineering controls and procedures for minimizing fugitive dust emissions associated with fuel storage, processing, and handling.

2.2 ASH HANDLING

Ash is collected from the multicyclone and electrostatic precipitators (ESP), as well as the bottom ash from the boiler. The ash handling and storage equipment includes a wet drag chain, an ash unloading drag chain, and an ash storage building. The ash storage building is emptied regularly by front-end loader into trucks and the ash is transferred off-site for disposal. Ash handling activities that have the potential to produce fugitive dust include unloading of ash from the ash storage building into trucks.

Section 3.2 details the procedures for controlling fugitive dust emissions associated with ash handling.

2.3 HAUL ROADS

Facility roadways are used for transporting fuel and ash. The Facility roadways are also used by the Facility employees, contractor employees, other companies (FAF entrance road), and other periodic delivery vehicles. The location of the Facility roadways with respect to the ash loading area and fuel receiving areas at the Generating Station are depicted on **Figure 2**. **Figure 3** depicts the location of roadways at the FAF.

Facility roadways at the Generating Station are paved, reducing the potential for dust generation from Facility traffic. However, spillage of material onto the Facility roadways would be a potential source of fugitive dust. The entrance roadway at the FAF is gravel.

Section 3.3 details the procedures for controlling fugitive dust emissions associated with haul roads.

SECTION 3

MONITORING AND CONTROL PROCEDURES

Visual observations are conducted by LWEC staff at the Generating Station and FAF on a daily basis to evaluate the effectiveness of the fugitive dust control measures. Visual observations at the Generating Station and FAF are documented on daily logs by LWEC supervisory personnel or their designee(s). Sample logs for the Generating Station and FAF are included in **Appendix A**. The logs specify the date and time of the visual observations, and name and title of the person making the observation. Fugitive dust control measures implemented are also recorded in the log (e.g. application of water, clean up of spilled fuel, etc.).

The following control procedures are utilized to minimize fugitive dust emissions. Visual monitoring will be used as the indicator of adequate dust control. In the event that visual monitoring indicates these procedures are not sufficient for minimizing fugitive dust emissions, these procedures will be adjusted as necessary and a revised FECP will be submitted to MDEQ AQD for review and approval.

3.1 FUEL STORAGE, PROCESSING, AND HANDLING

3.1.1 Generating Station

With the exception of TDF, most fuel is delivered to the Generating Station by the pneumatic blower/conveyor. All TDF is delivered by truck. At times, other fuels are also delivered in self unloading trucks to the Generating Station. Roadways at the Generating Station are paved, reducing the potential for dust generation from Facility traffic. However, spillage of material onto the Facility roadways would be a potential source of fugitive dust. Until the enclosure is completed roadways will be swept weekly, when climatic conditions allow, to minimize the presence of materials that could generate fugitive dust. After the enclosure is completed, roadways will be swept when climatic conditions and the presence of materials on the asphalt

dictate sweeping is needed. Documentation of climatic conditions, presence of material, and roadway sweeping will be made in the daily logs in **Appendix A**.

The trucks delivering fuel to the Facility are required to have a tarp covering the fuel or will be completely enclosed to minimize the release of fuel dust to the environment. If fuel residue remains in the truck after unloading, the truck is required to be re-covered with a tarp prior to leaving the Facility.

The blower/conveyor is typically used to transport fuel from the FAF to the Generating Station to minimize truck traffic. The blower/conveyor consists of an enclosed pipe and fan. A series of two process control cyclones are fitted on the end for fuel recovery into an enclosed fuel receiving hopper. In case of equipment malfunction in this system, fuels are delivered to the hopper by self-unloading (walking floor) trucks.

Solid fuels (except TDF) are unloaded from the trucks or blower/conveyor into a receiving hopper near the fuel storage building. Walking floor trailers are used for unloading fuel directly into the receiving hopper. The fuel is unloaded at a slow rate (approximately one to two tons per minute) so as to not overload the conveyor belt. This slow rate of transfer minimizes the potential for dust generation. The blower system will not be operated while unloading trailers.

The receiving hopper is located within an enclosure to capture fugitive dust. The seams of the hopper building where dust could escape are sealed with expanding foam and are to be sealed with flashing. Daily visible observations of the hopper enclosure will be made and if visible fugitive emissions from the hopper enclosure are observed, timely action will be taken to assure that the hopper enclosure seams are closed.[1] Actions will include, at a minimum, minimizing the transfer of fuel until the source of fugitive dust is identified and repaired. The receiving hopper curtain for truck unloading is to be closed while the blower/conveyor system is in operation.

The fuel is transported from the receiving hopper through a covered conveyor into the fuel storage building. In the event material is spilled from the conveyors (i.e. under the conveyors or

[1] Improvements to the hopper enclosure and permanent enclosure of the fuel conveyors are to be part of upcoming improvements for fugitive dust prevention. Within 90 days of completion of the enclosures, LWEC will submit a modified Plan for MDEQ review and approval.

on top of the currently tarped section of the conveyors), the material will be removed in a timely manner commensurate with the climatic conditions so as to minimize the potential for dust generation. Removal will be by standard sweeping and collection methods; any large volumes will be collected by front end loader and the cleaned-up fuel will be placed back into the receiving hopper or if not suitable for use it will be properly landfill disposed. The area will be cleaned in a timely manner when spilled material is observed. Cleaning consists of dry material removal such as shoveling, sweeping, and/or vacuuming. The area may be wetted during sweeping but flushing the area with water is not permitted. All corrective actions will be documented on the daily logs in **Appendix A**.

The TDF is delivered adjacent to the fuel storage building where it is stored temporarily before being loaded into a hopper that feeds onto the covered conveyor as needed.

At times, limited amounts of woody fuel, not to be greater than approximately 500 tons, may also be temporarily stockpiled outside of the fuel storage building. The stockpile will not be present for more than five days. Stockpiled material will be covered with a tarp to control dust generation, except during times when material is being added or removed.

The fuel storage building is fully enclosed. Three overhead doors are located on one side of the building to provide access to the stored fuel and fuel handling equipment. These doors are used in the event of a loading hopper equipment failure, to access equipment for maintenance, and to clean up aged fuel that may be beyond the reach of the fuel retrieval equipment. The doors are kept closed to minimize dust exiting the building except as needed to gain entry or to exit the fuel building. The fuel storage building will be observed weekly for evidence of fugitive dust leaks. The weekly observations will be noted on the log in **Appendix A**.

A covered conveyor transports the fuel from the fuel storage building to the boiler. In the event material is spilled from the conveyor (i.e. under the conveyor or on top of the currently tarped section of the conveyor), the material will be removed in a timely manner commensurate with the climatic conditions so as to minimize the potential for dust generation. Removal will be by standard sweeping and collection methods. Any large volumes will be collected by a front end

loader, and the cleaned up fuel will be placed back into the receiving hopper or if not suitable for use will be properly landfill disposed. The area will be cleaned in a timely manner when spilled material is observed. Cleaning consists of dry material removal such as shoveling, sweeping, and/or vacuuming. The area may be wetted during sweeping but flushing the area with water is not permitted.

3.1.2 FAF

At the FAF, which is operated independently by a contractor, woodchips and fines and bark are delivered by truck. In the past ground railroad ties have also been received via truck and railroad car. Unprocessed railroad ties usually arrive via railroad car or via truck from a separate off-site sorting and storage area leased by a contractor. The FAF roadways and majority of the surface areas are not paved. Vehicle speeds in the FAF will be posted to reduce the potential for dust generation. Wetting of the roadways and other areas will be conducted as needed during non-freezing operating conditions to control fugitive dust emissions.

The trucks delivering fuel to the Facility are required to have a tarp covering the fuel or will be completely enclosed to minimize the release of fuel dust to the environment. If fuel residue remains in the truck after unloading, the truck is required to be re-covered with a tarp prior to leaving the Facility.

Fuel storage at the FAF is not expected to be an appreciable source of fugitive dust due to the moisture content of the material. Stockpiled material will be visually monitored daily for dust generation. Observations will be recorded in the daily log in **Appendix A**. If dust generation occurs, the stockpile will be re-worked to cover the dusty material with wetter fuel or wetted.

Ground railroad ties removed from railroad cars will be placed into a transfer vehicle from a low height to minimize dust generation due to falling. Walking floor trailers will be used for material transfer to the extent possible. Transfer vehicles and trucks bringing ground railroad ties to the FAF will deposit the material at the entrance to the Processed Railroad Tie Storage Building. Trucks containing ground railroad ties will not use the truck dumper.

Dust generation from railroad tie processing is controlled by a water spray as needed during non-freezing operating conditions. During winter conditions, some snow is left on the ties during processing, which serves as a source of moisture for dust suppression. Grinding and transfer equipment operators will monitor for visible fugitive dust during operations and will initiate available corrective actions in a timely manner so as to minimize dust generation.

At the fuel loading bin, fuel is dumped from the end loader at a low height to minimize the drop into the bin and dust generation from fuel transfer. Side walls will be added to the bin to help route wind around the dumping area.

3.2 ASH HANDLING

The ash unloading drag chain is enclosed. This minimizes the potential for fugitive emissions from this source. The ash coming off the drag chain is wet, which ensures sufficient moisture to minimize dust generation prior to loading into trucks for off-site transportation. In the event that dust generation is observed associated with the doors being open on the Ash Storage Building, LWEC will repair or construct a new door system that can be closed.

In the event of spillage onto the paved loading area from the haul truck loading process, the spilled material is collected to minimize fugitive dust emissions and to ensure that ash is not tracked away from the loading area. Spilled ash material will be removed in a timely manner commensurate with the climatic conditions so as to minimize the potential for dust generation. The cleaned up ash material will be placed into the ash hauling trucks or placed back into the Ash Storage Building. Cleaning consists of dry material removal (i.e. shovel, broom, and/or vacuum) or wetting the area with water to facilitate sweeping and cleanup to minimize dust generation.

3.3 HAUL ROADS

Truck traffic entering or leaving the facility uses the Generating Station's paved roadways. In the event of spillage of ash or fuel onto the Facility roadways, the spilled material is collected to minimize fugitive dust emissions and to ensure that the material is not tracked off-site.

As previously stated in **Section 3.1.1**, Generating Station roadways will be swept in a timely manner when spilled material is observed commensurate with the climatic conditions so as to minimize the potential for dust generation.

As previously stated in **Section 3.1.2**, the FAF roadways and a majority of the surface areas are not paved. Vehicle speeds in the FAF are low to reduce the potential for dust generation. Wetting of the roadways and other areas will be conducted as needed during non-freezing conditions to control fugitive dust emissions.

FIGURES

Aerial Imagery Source: ESRI World Imagery Map Service / NAIP2014

Mannik Smith GROUP
TECHNICAL SKILL. CREATIVE SPIRIT.
www.MannikSmithGroup.com

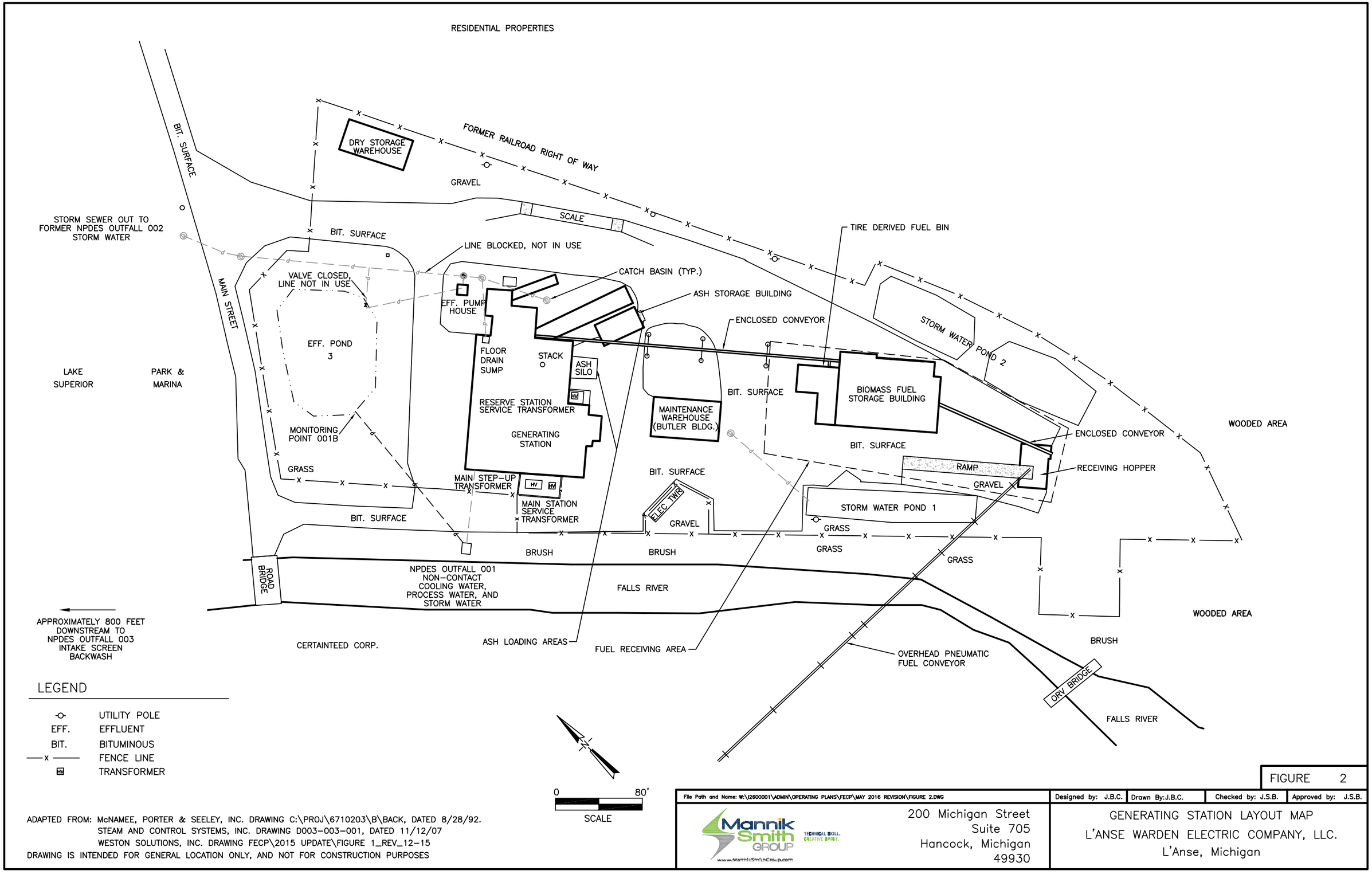
FIGURE 1

FACILITY LOCATIONS MAP

L'Anse Warden Electric Company, LLC.
L'Anse, Baraga County, Michigan

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
5/9/2016	KRB	JBC	L2600001

Date Saved: 5/9/2016 12:08:46 PM
Path: W:\Projects\Projects K-O\L2600001\ENGAPPS\GIS\mxds\Fig1_Facility_Locations_Map_v20160509.mxd



ADAPTED FROM: McNAMEE, PORTER & SEELEY, INC. DRAWING C:\PROJ\6710203\B\BACK, DATED 8/28/92.
STEAM AND CONTROL SYSTEMS, INC. DRAWING D003-003-001, DATED 11/12/07
WESTON SOLUTIONS, INC. DRAWING FECP\2015 UPDATE\FIGURE 1_REV_12-15
DRAWING IS INTENDED FOR GENERAL LOCATION ONLY, AND NOT FOR CONSTRUCTION PURPOSES

FIGURE 2

File Path and Name: W:\12600001\ADMIN\OPERATING PLANS\FECP\MAY 2016 REVISION\FIGURE 2.DWG

Designed by: J.B.C. | Drawn By:J.B.C. | Checked by: J.S.B. | Approved by: J.S.B.

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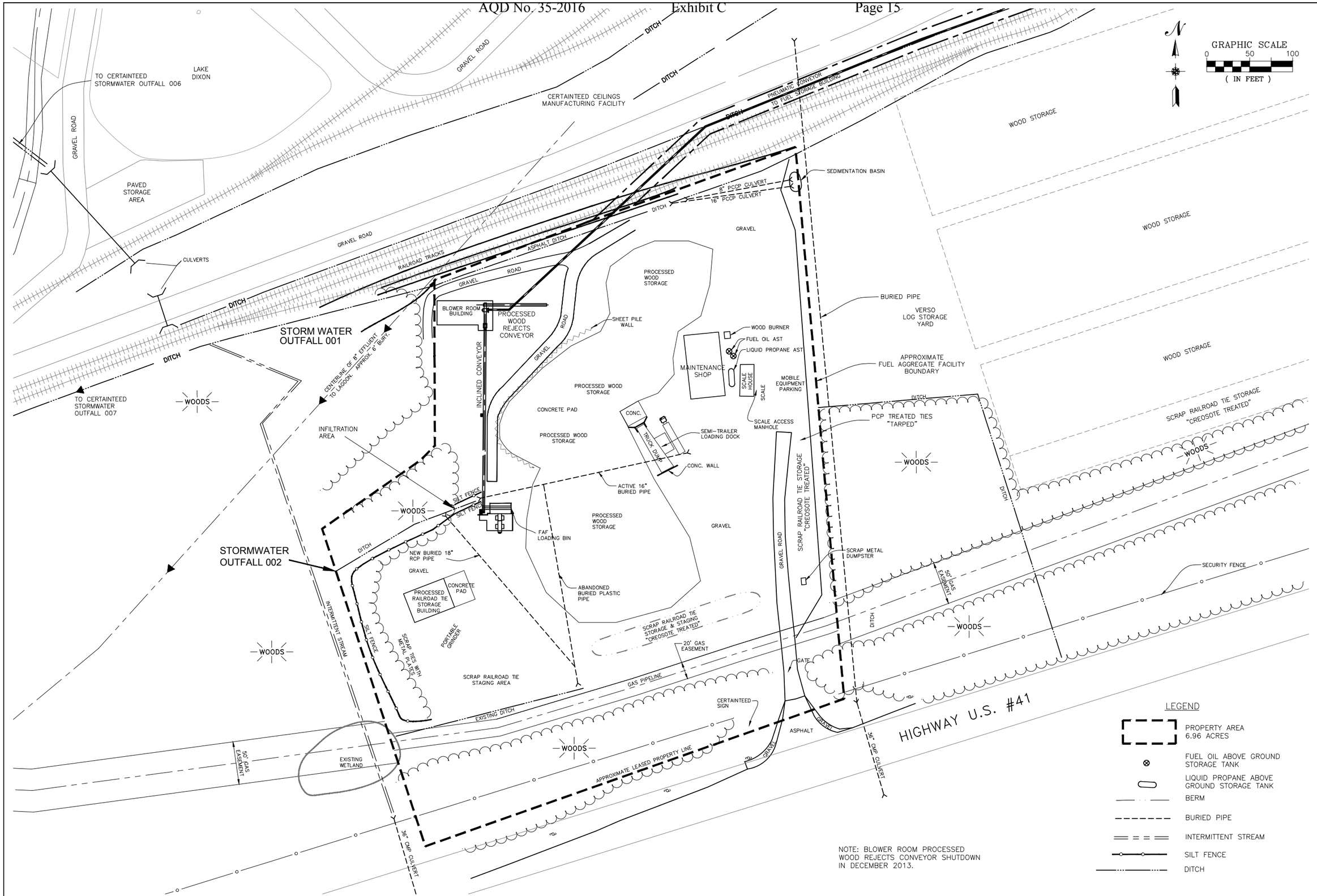
TECHNICAL SKILL. CREATIVE SPIRIT.
www.MannikSmithGroup.com
200 Michigan Street
Suite 705
Hancock, Michigan
49930

GENERATING STATION LAYOUT MAP
L'ANSE WARDEN ELECTRIC COMPANY, LLC.
L'Anse, Michigan



NOTE: BLOWER ROOM PROCESSED WOOD REJECTS CONVEYOR SHUTDOWN IN DECEMBER 2013.

COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE – IRON MOUNTAIN, MICHIGAN 49801 (906) 774-3440
200 EAST AYER STREET – IRONWOOD, MICHIGAN 49938 (906) 932-5048

L'ANSE WARDEN ELECTRIC COMPANY L.L.C.
FUEL AGGREGATE FACILITY SITE MAP
L'ANSE, MI

SCALE: AS SHOWN	DATE: 5-13-14	
10295_LWEC_SITE.DWG	CADD PROJECT: CAD10295-WPEP LWEC SWPP	JOB NUMBER: 10295-D
MRK/JA/GDH	CHECKED: DS	APPROVED:
CEC	DATE: 9/24/12	

3
DRAWING NO.

APPENDIX A

DAILY OBSERVATION LOGS

L'Anse Warden Electric Company, LLC
Generating Station
Daily Fugitive Emission Inspection and Observation Log

Date of Inspection: _____ Time of Inspection: _____

Inspected By: _____ Title: _____

Comments:

Current weather conditions: _____

Precipitation _____ Wind conditions _____

Visual Inspection and condition:

The general visual inspection of the areas will include, but are not limited to the following:

-Fugitive fuel or ash has been cleaned up in accordance with the FECP.
-Fugitive fuel or ash is returned to the hopper or transport as required.
-Fuel and ash materials are stored as required.
-Operating conveyor equipment is enclosed or covered.
-Bottom ash wet drag chain and ash unloading drag chain are providing an approximate minimum of 15% - 30% moisture.
-Stockpiled fuel is stored as required.
-Areas are clean and generally free of fugitive dust.

1. Fuel Handling area

Fuel receiving hopper area, including pneumatic conveying cyclone:
Seals on hopper and cyclone joints intact:
Hopper to Fuel building conveying system:
Fuel Storage building:
TDF area:
Main conveying system from storage building to plant:
Diverter for return of partially burned fuel to grate:

___ Acceptable Condition ___ Other (Detail below)

Action Taken/Comments: _____

Generating Station
Daily Fugitive Emission Inspection and Observation Log

2. Ash Handling area

   Ash conveying system:
   Wet Ash Unloading Drag Chain:
   Precipitator ash conveying piping:
   Ash Storage Building:
   Ash Off-loading equipment:

   ___ Acceptable Condition ___ Other (Detail below)

   Action Taken/Comments: _____

3. Roadways: Inspect all roadway areas from gate to fuel storage building and ash handling area.

   Roadway swept/cleaned today: yes / no (circle one).

   ___ Acceptable Condition ___ Other (Detail below)

   Action Taken/Comments: _____
   (if not swept today describe why)

4. Supervisory Review: Review operator logs to verify that the fugitive emissions checks have been completed.

   ___ Acceptable Condition ___ Other (Detail below)

   Action Taken/Comments: _____

L'Anse Warden Electric Company, LLC
Fuel Aggregation Facility
Daily Fugitive Emission Inspection and Observation Log

Date of Inspection: _____ Time of Inspection: _____

Inspected By: _____ Title: _____

Comments:

Current weather conditions: _____

Precipitation _____ Wind conditions _____

Visual Inspection and condition:

The general visual inspection of the areas will include, but are not limited to the following:

-Misplaced materials are returned to appropriate storage areas.
-Processed materials are stored as required.
-Stockpiled scrap wood is stored as required.
-Roadways not generating dust.
-Processing is not generating dust.
-Areas are clean and generally free of fugitive dust.

1. Scrap Wood Receiving and Staging Areas

   Scrap wood receiving area:
   Staging areas:

   ___ Acceptable Condition ___ Other (Detail below)

   Action Taken/Comments: _____

Fuel Aggregation Facility
Daily Fugitive Emission Inspection and Observation Log

2. Scrap Wood Processing and Storage Area

   Ground Wood Storage building and apron:
   Grinding area:
   Woodchip pile area:

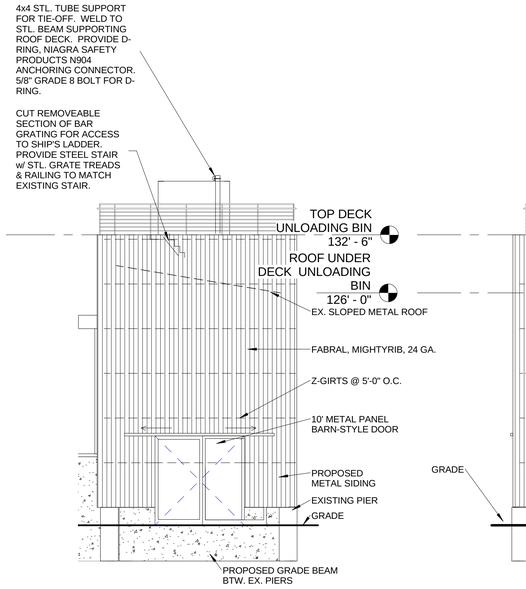
   ___ Acceptable Condition ___ Other (Detail below)

   Action Taken/Comments: _____

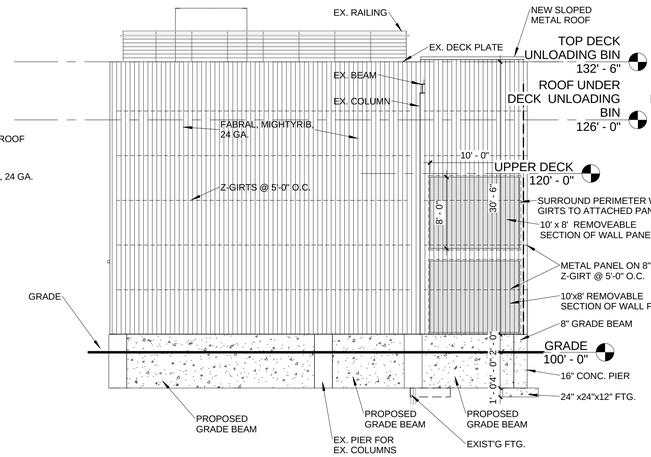
3. Roadways and General Surfaces: Inspect all Site surfaces.

   ___ Acceptable Condition ___ Other (Detail below)

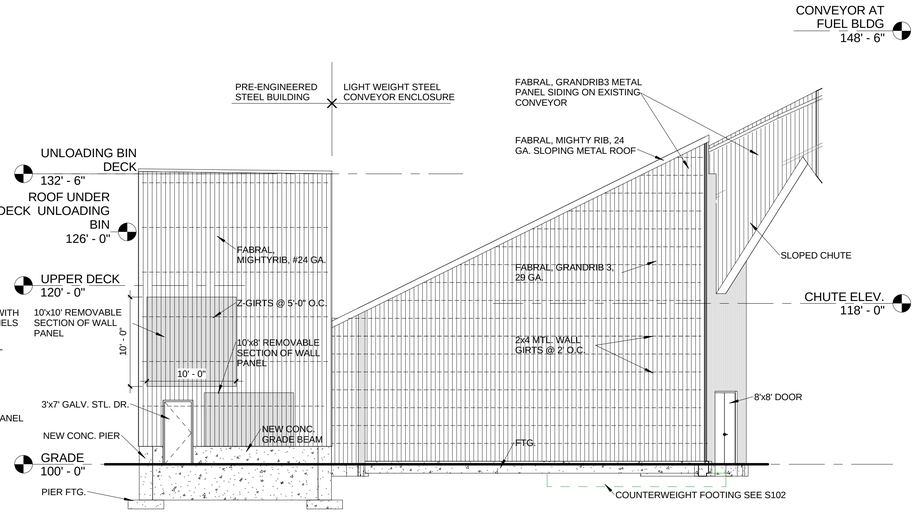
   Action Taken/Comments: _____



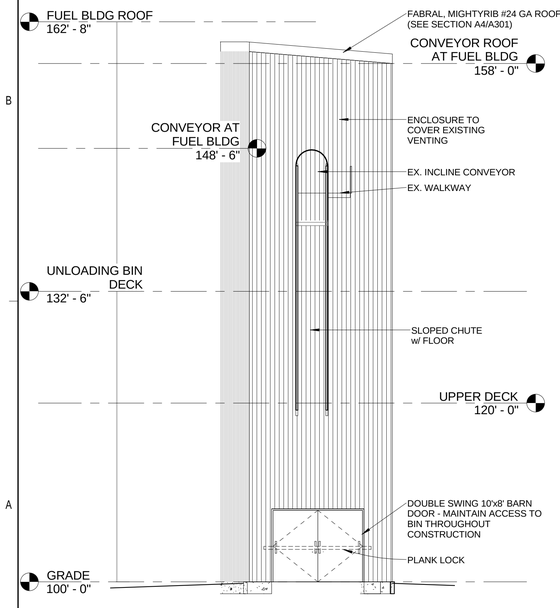
C1 UNLOADING BIN SOUTH ELEV.
1/8" = 1'-0"



C2 UNLOADING BIN EAST ELEVATION
1/8" = 1'-0"



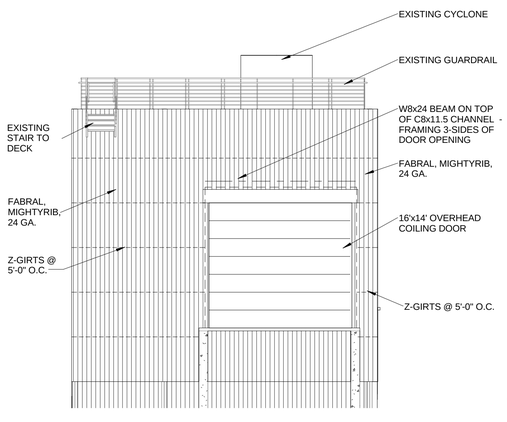
C3 NORTH ELEVATION UNLOADING BIN AND INCLINE CONVEYOR
1/8" = 1'-0"



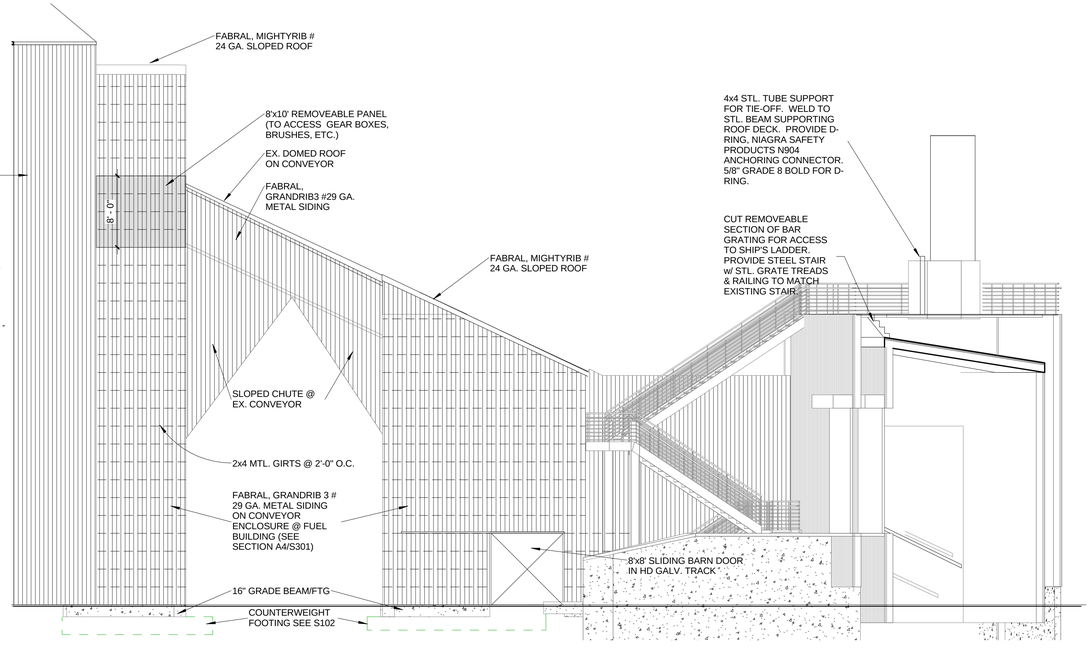
A1 EAST ELEVATION - CONVEYOR ENCLOSURE @ FUEL BUILDING
1/8" = 1'-0"

GENERAL NOTE:

UNLOADING BIN BUILDING SHALL BE WRAPPED WITH FABRAL MIGHTYRIB STEEL SIDING ALL 4 SIDES ON OUTSIDE OF EXISTING COLUMNS. PROVIDE NEW COILING DOOR IN FRONT OF EXISTING OPENING AT TOP OF EXISTING RAMP.



A2 WEST ELEVATION UNLOADING BIN BUILDING
1/8" = 1'-0"



A3 SOUTH ELEVATION INCLINE CONVEYOR
1/8" = 1'-0"

UPEA ENGINEERS & ARCHITECTS

ENGINEERING
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ENVIRONMENTAL

100 PORTAGE STREET
HOUGHTON, MI 49931
(906) 482-4810

2906 N. STEPHENSON AVE. SUITE 2
IRON MOUNTAIN, MI 49801
(906) 779-0937

424 SOUTH PINE STREET
ISHPEMING, MI 49849
(906) 485-1011

707 ASHMUN ST.
SAULT STE. MARIE, MI 49783
(906) 635-0511

1701 DUNLAP AVE. SUITE B
MARINETTE, WI 54143
(715) 732-4188

PROJECT TITLE:

DUST TRANSPORT PREVENTION PROJECT

L'ANSE WARDEN ELECTRIC COMPANY LLC

PROJECT LOCATION:

L'ANSE, MICHIGAN

REVISED	6/14/2016
REVISED	5/26/2016
BIDDING/CONSTRUCTION	5/16/2016
REVISED	5/4/2016
PRELIMINARY	4/28/2016
Project Status	Issue Date
ISSUED FOR:	DATE:

PROJECT NO:	L103-16279
DESIGNED BY:	GAK
DRAWN BY:	MEL
CHECKED:	GAK
APPROVED:	GAK

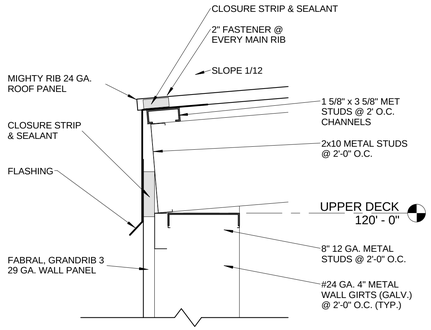
INCLINE CONVEYOR ELEVATIONS

S201

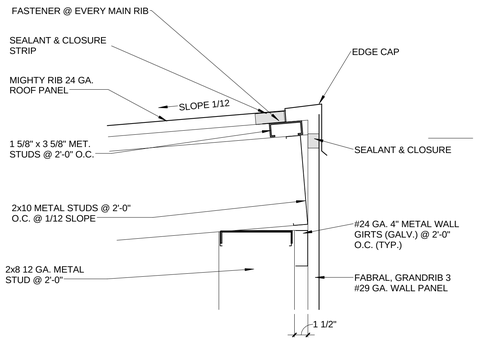
6/14/2016 1:03:25 PM
P:\L103-16279 L'Anse Warden Electric Company-Dust Transport Prevention\Dwgs\L103-16279.rvt

STEEL WALL PANEL SCHEDULE

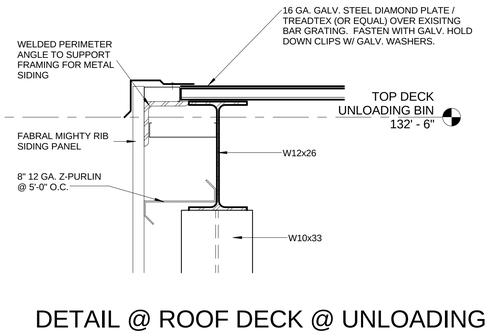
LOCATION	ROOF METAL	WALL METAL	WALL GIRTS
1. INCLINE CONVEYOR ENCLOSURES	FABRAL MIGHTY RIB #24 GA	FABRAL GRANDRIB 3 #29 GA.	4" GALV., #24 GA. WALL GIRTS @ 2'-0" O.C.
2. UNLOADING BIN ADDITION	RUBBER ROOF, 1 1/2" #22 GA. B-DECK	FABRAL MIGHTY RIB #24 GA.	8" #12 GA. Z-GIRTS @ 5'-0" O.C.
3. UNLOADING BIN SOUTH & EAST WALLS	--	FABRAL MIGHTY RIB #24 GA.	8" #12 GA. Z-GIRTS @ 5'-0" O.C.



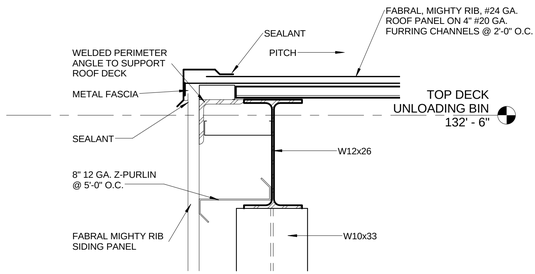
C1 EAVE DETAIL
1 1/2" = 1'-0"



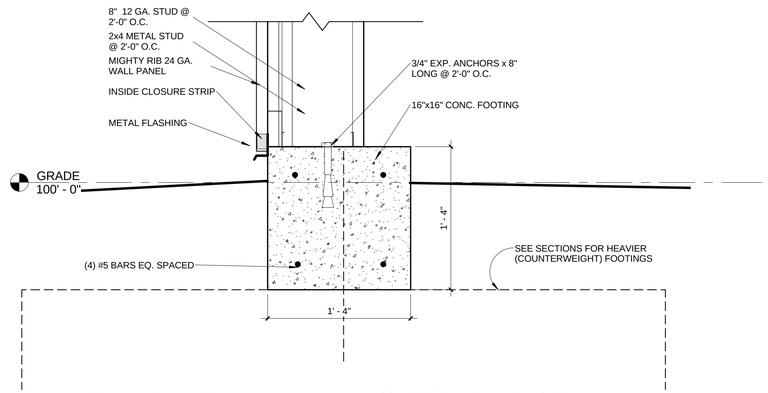
C2 MONO SLOPE RIDGE DETAIL
1 1/2" = 1'-0"



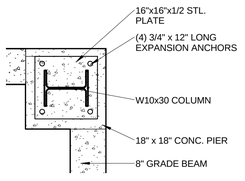
C3 DETAIL @ ROOF DECK @ UNLOADING BIN BLDG.
1 1/2" = 1'-0"



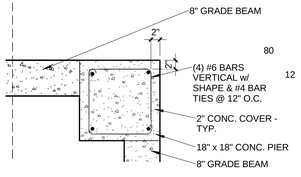
D4 DETAIL @ ROOF DECK ADDITION
1 1/2" = 1'-0"



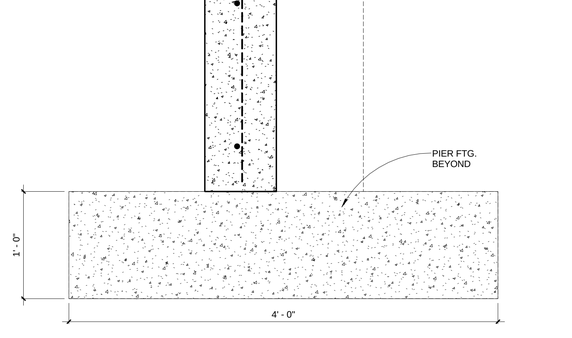
A1 FOUNDATION - METAL ENCLOSURE BLDG.
1 1/2" = 1'-0"



B3 PIER PLATE DETAIL
3/4" = 1'-0"



A3 PIER REINF. DETAIL
3/4" = 1'-0"



A4 DETAIL @ GROUND BEAM
1 1/2" = 1'-0"

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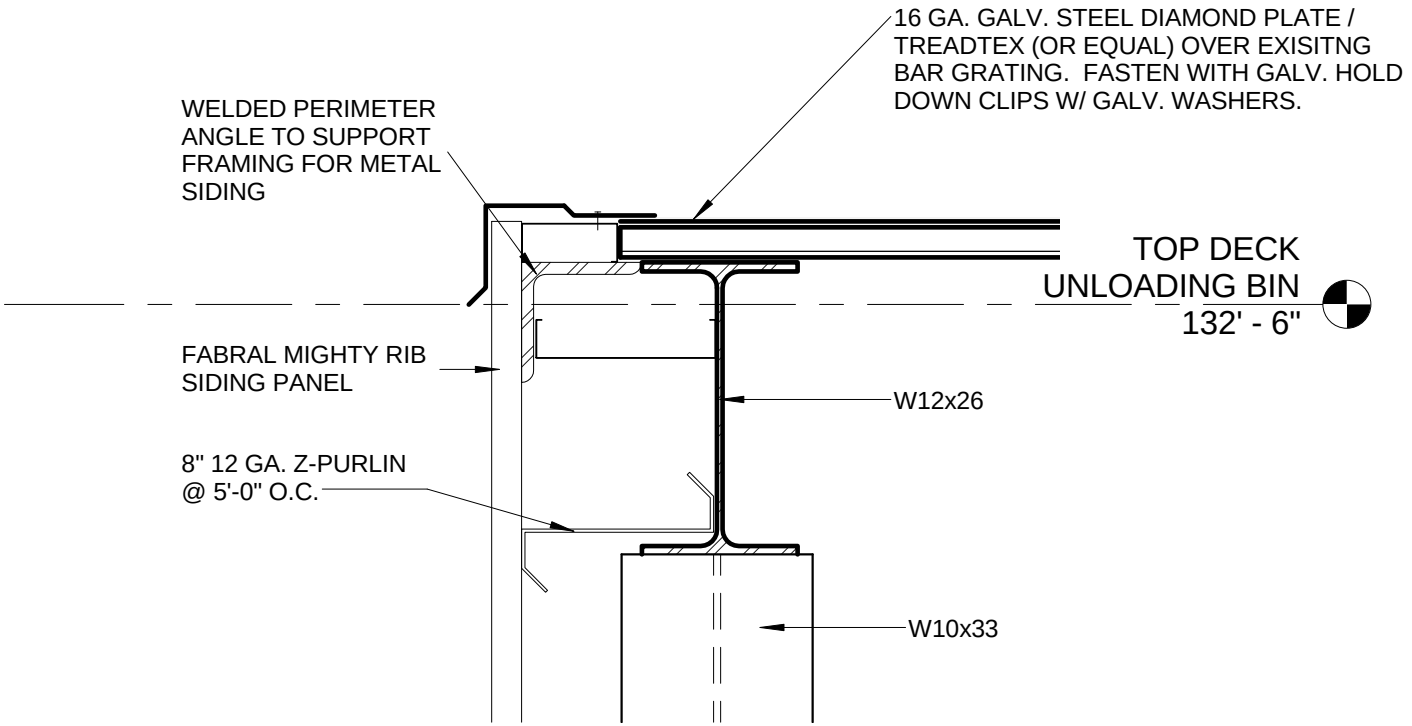
DESIGNED BY:	GAK
DRAWN BY:	MEL
CHECKED:	GAK
APPROVED:	GAK

STRUCTURAL METAL BUILDING & METAL ENCLOSURE DETAILS

S502


16 GA. GALV. STEEL DIAMOND PLATE / TREADTEX (OR EQUAL) OVER EXISITNG BAR GRATING. FASTEN WITH GALV. HOLD DOWN CLIPS W/ GALV. WASHERS.
WELDED PERIMETER ANGLE TO SUPPORT FRAMING FOR METAL SIDING
TOP DECK
UNLOADING BIN
132' - 6"
FABRAL MIGHTY RIB SIDING PANEL
W12x26
8" 12 GA. Z-PURLIN @ 5'-0" O.C.
W10x33