DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
**ACTIVITY REPORT: Scheduled Inspection**

B400141212

| | | |
|---|---|---|
| **FACILITY:** LBWL, Erickson Station | | **SRN / ID:** B4001 |
| **LOCATION:** 3725 South Canal Road, LANSING | | **DISTRICT:** Lansing |
| **CITY:** LANSING | | **COUNTY:** EATON |
| **CONTACT:** Trista Gregorski , Engineer | | **ACTIVITY DATE:** 08/24/2017 |
| **STAFF:** Michelle Luplow | **COMPLIANCE STATUS:** Compliance | **SOURCE CLASS:** MAJOR |
| **SUBJECT:** Scheduled, announced inspection of the Erickson fly ash handling facility; scheduled, unannounced inspection of the Erickson Power Plant. | | |
| **RESOLVED COMPLAINTS:** | | |

Inspected by: Michelle Luplow (author) & Julie Brunner (AQD LDO)

Personnel Present: Trista Gregorski (Trista.Gregorski@lbwl.com), Environmental Services Engineer
Lori Myott (Lori.Myott@lbwl.com), Environmental Service Manager
Emily Wright (Emily.Wright@lbwl.com), Engineer
Dave Klemish, Foreman (power plant)
Keith Beson (Ash Handling site)

Other LBWL Personnel: Cindy Lehmkuhle, Plant Manager (ll@lbwl.com)

**Purpose:** Conduct an unannounced, scheduled compliance inspection of the LBWL Erickson Station Power Plant, and an announced, scheduled compliance inspection of the LBWL Fly Ash Handling Facility located on Millett Highway. Compliance was determined with the Lansing Board of Water and Light's Renewable Operating Permit MI-ROP-B4001-2015. This also included follow-up inspection of items addressed in the LBWL's April 2017 updates to the Fugitive Dust Management Plan and Malfunction Abatement Plan in response to the 8/26/2016 violation notice. This inspection was a partial compliance evaluation (PCE), conducted as part of a full compliance evaluation (FCE).

**Facility Background/Regulatory Overview:**
The Erickson Station is a major source of criteria air pollutants NOx, $SO_2$ and CO, and a major source of the HAPs hydrogen chloride (HCl) and hydrogen fluoride (HF). The Erickson Station is scheduled to close their coal-burning plant by year 2025.

The Erickson boiler, EU001, is considered an electrical generating unit (EGU) which is subject to 40 CFR 63 Subpart UUUUU NESHAP for Coal- and Oil-fired Electric Utility Steam Generating Units. Compliance was originally required by April 16, 2015; however, on September 28, 2012, Mark Matus requested an extension of the compliance deadline for the Federal Mercury and Air Toxics Standards (40 CFR 63 Subpart UUUUU, MATS) because of the need to stagger installation schedules for Hg control so that reliable power can be provided during outage periods. The AQD granted an extension compliance date of April 16, 2016 on December 17, 2012. Additionally, EU001 is subject to the Acid Rain Program and the Cross-State Air Pollution Control Rule (CSAPR): NOx Annual Trading Program; NOx Ozone Season Trading Program; and the SO2 Group 1 Trading Program. The current ROP was renewed in October 2015. There are currently no specific requirements in MI-ROP-B4001-2015 for MATS.

LBWL Erickson had installed a carbon absorption system for Hg in order to comply with the MATS. RATA testing for Hg is conducted annually. The last Hg CEM RATA test report was received 10/4/2016. Hg RATA is planned to be conducted again the week of 9/11 – 9/14/2017. MATS stack testing for HCl and PM have been occurring on a quarterly basis. The most recent PM and HCl test report was received 8/14/2017 for testing conducted June 20-21, 2017 (2nd quarter). Mostardi Platt conducted the testing.

The Cleaver Brooks No.2 oil-fired auxiliary boiler, EUAUXBLR, is subject to the Boiler MACT subpart DDDDD (for major sources of HAPs) and was re-permitted as a "limited use" boiler in May 2015 (PTI 71-15). The compliance deadline for this existing unit was January 31, 2016.

The Clark Fire Pump engine is used for emergency purposes only and is subject to NSPS IIII.

**Inspection:** The inspection at the power plant was an unannounced compliance inspection. At approximately 9:00 a.m. on August 23, 2017 I arrived at the gate to the LBWL Erickson Station (LBWL) to be let into the facility. I met with Les Baldwin, shift supervisor, while waiting for LBWL staff, Trista Gregorski and Emily Wright to arrive. LBWL has put a procedure in place to have the plant's office staff call the environmental services staff (located near downtown Lansing) when an inspector arrives at the facility, prior to allowing the inspector to conduct an inspection.

T. Gregorski is aware of and has an electronic copy of the January 2017 updated to the PTI Exemptions handbook.

On August 24, 2017 Julie Brunner and I conducted an announced inspection of the fly ash handling facility. The LBWL requests that prior to entrance at the ash handling facility, inspectors sign in at the LBWL plant. We signed in at the plant and met with Lori Myott, Trista Gregorski, and Emily Wright prior to driving over to the fly ash handling facility. We all arrived at the fly ash handling facility around approximately 1:00 p.m. and left at 2:30 p.m. Julie Brunner took the inspection photos.

**MI-ROP-B4001-2015 Emission Units Table**

| Emission Unit | Description | Installation/Mod Date | Flex Group |
|---|---|---|---|
| EU001 | Babcock & Wilcox 1668 MMBTU/hr pulverized coal-fire boiler. No. 2 fuel oil used for startup and flame stabilization | 7-1-1970 | NA |
| EUAUXBLR | Cleaver Brooks aux boiler, No. 2 fuel oil-fired. Supplies heat to plant | 5-7-1971 | NA |
| EUFPENGINE | John Deere Power Systems 175 bhp 4-stroke Diesel Compression Ignition Clark Fire Pump Emergency Engine, Model JU6H-UFADM8. Maximum heat input is approximately 1.4 MMBTU/hr with a 6.8 L/cylinder displacement. | 11-2013 | NA |
| EUASHDC1 (East and West Storage Silos baghouse) | Ash handling equipment w/ particulate control device for transfer of ash from storage to load out silos | 10-1-1978/ 12-28-1991 | FGASHHANDLING |
| EUASHDC2 (Loadout silo – baghouse to control dust entering the silos) | Ash handling equipment w/ particulate control device for loading trucks from silos | 7-1-1970 | FGASHHANDLING |
| EUASHDC3 (Truck loadout chute baghouse) | Ash handling equipment w/ particulate control device for transfer of ash to storage silos | 10-1-1970/ 1-1-1982, 5-1-17 | FGASHHANDLING |
| EUASHDC4 (Mass storage building baghouse) | Ash handling equipment w/ particulate control device for transfer of ash to mass storage building | 7-1-1970 | FGASHHANDLING |
| EUASHDC5 (Fly ash building baghouse located at the main plant) | Ash handling equipment w/ particulate control device for transfer of ash from Erickson to ash storage facilities | 7-1-1970 | FGASHHANDLING |
| EUCOLDCLEANER | Thirty gallon parts washer for cleaning/degreasing parts using Stoddard solvent/mineral spirits. | 1998 | FGCOLDCLEANERS |

**EU001 – Babcock Wilcox pulverized coal-fired boiler**
EU001 boiler combusts Western Coal from the Powder River Basin. T. Gregorski said that shipment frequency varies, but typically LBWL receives shipments weekly to biweekly. The goal is to keep enough onsite for what they predict they will need.

*Emission Limits & Testing/Sampling*
Particulate emissions testing, required per rule 331(1)(a), was required to be conducted within 12 months of the date of issuance of MI-ROP-B4001-2015 (December 8, 2015). PM testing was conducted August 4, 2016 for verification that PM emission rates do not exceed the 0.17 lb/1000 lbs exhaust gas (corrected to 50% excess air) PM limt. The emission rate was determined to be 0.01 lb PM/1000 lbs exhaust gas (corrected to 50% excess air).

*Emission Limits & Reporting*
"Daily $SO_2$ Compliance" and excess emissions reporting (which includes opacity) are submitted on a quarterly basis, as required under EU001's VII. Reporting requirements. All quarterly reports submitted to-date have been reviewed for compliance with the SO2 limit of 1.67 lb/MMBTU heat input (when burning coal) per 24-hr period, and the 20% opacity limit (6-minute average) and have been found in compliance.

*Material Limits & Monitoring/Recordkeeping*
LBWL is limited to a coal ash content of no more than 14 wt%. Monitoring/Recordkeeping for EU001 also requires coal analysis records be kept and include the following data for each delivery of coal be kept: wt% ash, wt% sulfur, and wt% moisture, and BTU/lb. As requested, T. Gregorski provided me with the 3 most recent coal shipment analyses. Table 1 contains this data.

**Table 1.** Coal analysis

| Date | Wt% Ash (dry) | Wt% sulfur (dry) | Wt% moisture | BTU/lb (wet) |
|---|---|---|---|---|
| 7/22/17 | 4.62 | 0.26 | 26 | 8989 |
| 8/14/17 | 5.57 | 0.27 | 27 | 9091 |
| 8/20/17 | 5.54 | 0.26 | 26 | 9124 |

The 3 shipments of coal that were shipped to the Erickson Station are from the Thunder Basin Coal Company (see attachment). Maximum ash content was 5.57%.

*Process/Operational Restrictions*
EU001 uses Western coal from the powder river basin (PRB) in Wyoming. It is classified as sub-bituminous which means it has a low sulfur content. Additionally, during periods of startup, LBWL will use fuel oil #2 in the boiler.

LBWL Erickson is permitted to use additives labeled for the purpose of minimizing dust from, or improving the characteristics of fuel handling and storage, as long as they are used in accordance with the fugitive dust control plan required for EU001. According to the fugitive dust plan, LBWL Erickson currently uses GE Dustreat DC9139E and Dustreat DC 9138E. According to the plan Dustreat DC9138E is used for dust suppression at the coal loading and transfer points to minimize fugitive dust from the coal dumper and on the coal feed belts, and additive DC9139E is a crusting agent that minimizes fugitive dust emissions from the coal pile and haul roads. Each additive has its manufacturer's recommended feed rate. Any time the LBWL changes coal dust suppression/wetting agents they must change their fugitive dust plan to contain these suppressants as well as demonstrate Rule 285(b) exemption.

Boiler cleaning solutions are also allowed to be combusted for the cleaning of internal surfaces of boiler tubes and related steam and water cycle components if the solution does not contain HAPs. Sue Pemberton, now retired, said during a review of the condition in 2015, that the Erickson boiler undergoes chemical cleaning approximately every 7 years with an EDTA chelating agent. T. Gregorski said that the last time the boiler was cleaned with chemicals was in 2010. D. Allen said during the 2016 inspection that LBWL currently uses ChelClean 675. T. Gregorski verified that no new cleaning agents have been used. According to the SDS attached to the 2015 previous inspection report, tetraammonium ethylene diamine tetraacetate and ammonium

hydroxide are the major components, but neither of these are considered HAPs by the EPA. D. Allen said that the LBWL will likely be using a different boiler cleaning solution in the future, as the one they currently use may no longer be produced, but as of now ChelClean 675 is used.

*Process/Operational Restrictions & Design/Equipment Parameters*
The electrostatic precipitators (ESPs) are required to be installed, maintained and operated in a satisfactory manner if LBWL wishes to operate EU001. T. Gregorski explained that other than opacity above 20% emitted from the stack, the other indicator for determining whether the ESPs are operating satisfactorily is the voltage across the transformer/rectifier sets. The ESP transformer/rectifier sets are full automated, but can be manually adjusted.

M. Nelson explained that each of the 5 fields contained in each of the 2 boxes can collect 80% of the fly ash entered the ESP. Arcing between the plates (spark) occurs when ash builds up on the plates. The sparking rate at the last of the 5 fields is lower than the first plate because less ash is collected at this last field.

The ROP requires that the ESP transformer-rectifier sets be capable of operating in spark-limited mode and that the primary RMS voltage and amperage and the average secondary amperage be metered and displayed. M. Nelson explained that the ESP's transformer/rectifier set operates on spark-limited mode, but that they run on the current limit for the first field: they limit how much power is put through. The first field doesn't reach the limit. Both voltage and amperage are metered and displayed, for each of the 5 sections of the ESP. D. Klemish explained at the previous inspection that a remote computer is used to adjust power levels based on the sparking rate limits. The automatic controller employs solid-state circuitry to preset power levels based on sparking rate limits. The transformer-rectifier set is also equipped with a silicon-controlled rectifier linear reactor.

The maximum power the automatic controller is set to is 75 kV DC at full load. The maximum current is 1000 mAmps. The sparking rate limit is set lower than the maximum power.

The transformer/rectifier set requirements under *Design/Equipment Parameters* can potentially be removed during the next ROP permitting cycle. As Julie Brunner pointed out, the original UAR for these conditions was Rule 330, which has been since rescinded and, Rule 330 UAR's were then replaced with Rule 910; however, ensuring that the ESPs are operating properly can be addressed via instituting an MAP and ensuring that opacity limits are being met. If the ROP for LBWL Eckert/Moore's Park is approved with removal of these conditions, the LBWL Erickson Station Renewal will provide an opportunity to do the same.

*Monitoring/Recordkeeping*
LBWL is required to install, calibrate, certify, maintain, and operate a CEM system for measuring and recording the gas flow, sulfur dioxide, carbon dioxide, and nitrogen oxides content of the boiler exhaust gases; they are also required to do the same for a COM system which shall have an automated data acquisition and handling system for measuring and recording the opacity of emissions.

RATAs for these monitors are conducted annually, verified by AQD's Technical Programs Unit. RATAs are used to confirm the calibrations that are conducted daily on the monitors.

Table 2 lists the current CEMS/COMS monitors that are installed at the time of this inspection. T. Gregorski explained that they will swap out these monitors temporarily if the installed monitor needs to be fixed. She said the last time there was a swap out was this past winter for approximately 1 week. Once the monitors are repaired they are put back into place. LBWL is required to maintain an inventory of parts for routine repairs to the COMs monitoring equipment. T. Gregorski provided me with this list, attached, which includes parts inventory for CEMs also. She said maintenance on the COMs monitors is conducted quarterly, but also on an as-needed basis.

**Table 2.** CEMs & COMs Monitors & Real-time Data Snapshots

| Parameter | Manufacturer | Serial No | Model | Real-time Data 8/23/17 |
|---|---|---|---|---|
| $CO_2$ | Teledyne API | 63 | T360M | 1121 ppm (uncorrected); 11.6% corrected |
| $NO_x$ | Teledyne API | 337 | T200 | 112.8 pph |
| $SO_2$ | Teledyne API | 61 | T100H | 157.7 pph |
| Opacity | Teledyne | 5602319 | 560 Light Hawk | 4.35% |
| Gas Flow | Teledyne Ultraflow | 1501157 | 150 | 441.4 $mft^3$ |

Whenever the COMs system detects opacity that exceeds the 20% requirement in the ROP, a light comes on (visual alarm) in the control room to signal the operators that opacity limits have been exceeded. All excess emission reports list all exceedances of 20% opacity, the majority of the exceedances the result of boiler startup/shutdown or malfunction. D. Allen said in a previous inspection that a "purge air heater" was installed in the fall 2013 after the February 2013 COMs failure from the exposure to extremely cold temperatures. This installment should prevent COMs failure in the event of subzero ambient temperatures in the future.

A. Berg, at the previous inspection, explained that the COMS samples and analyzes every 2-3 seconds and then averages this data every 6 minutes. Daily zero and span checks are conducted and the records are stored in a data logger. A. Berg showed me the electronic records for the checks. Span checks are conducted throughout the night and the results are checked in the morning to determine if the calibration passed or not. He also said that a cabinet is kept with parts for routine repairs on the COM system.

Conditions in the ROP also require various parameters and data be recorded on a daily basis. The following are examples of how the LBWL is meeting those requirements:

The 24-hour average $SO_2$ emission rate is required to be determined in order to determine compliance with the $SO_2$ emission limits for both fuel oil (1.11 lb/MMBTU heat input) and coal combusted (1.67 lb/MMBTU heat input). As discussed under *Emission Limits & Reporting*,compliance checks are conducted on the quarterly reports. Sue Pemberton had said that fuel oil and coal are burned simultaneously when there is a megawatt load change. E. Wright and T. Gregorski confirmed that the LBWL does not burn fuel oil and coal simultaneously; fuel oil is burned during startup, but coal is used during all other periods of operation. CEMS records $SO_2$ from both fuel sources, therefore as long as the quarterly data does not show an exceedance of the lower limit of 1.11 lb SO2/MMBtu, LBWL is in compliance with both 24-hr avg emission limits. If there were exceedances of this limit, then LBWL would have to show compliance with both the oil $SO_2$ limit and coal $SO_2$ limit by conducting the required calculations in Appendices 7.1 and 7.2 of the ROP.

*Reporting*
LBWL is required to submit Excess Emissions and Monitoring Systems Performance Reports and Summary Reports for the COMs on a quarterly basis. All reports have been submitted timely and reviewed for compliance to-date, in addition to the annual and semi-annual reporting.

*Other Requirements*
A MAP and Fugitive Dust Control Program for EU001 are required to be implemented. The most recent Fugitive Dust Management Plan was updated April 2017 in response to a violation notice issued in August 2016 for fly ash fugitive dust. Previous to these revisions, other updates had been made to the plan in March 2015 to ensure the plan is consistent with CAM regulations.

The Fugitive Dust Control Plan includes fugitive dust mitigation procedures for both the fly ash handling system and the delivery, storage, handling and use of coal.

Since the 2015 inspection, the LBWL has tried multiple avenues for controlling coal dust and preventing it from leaving the property line, as a result of the complaints received and samples taken on J. Pemberton's property, A1 Auto, which has since been sold.

To mitigate fugitive dust from strong prevailing westerly winds, D. Allen said during a previous inspection, that since May 10, 2015 they have been maintaining the pile at a lower height, while keeping the berm higher than the tip of the coal pile. As soon as they offload the coal onto the pile, the coal is graded to maintain that height. This berm is flush with the top of the coal pile, so that any fugitive dust being blown off the coal pile hits the berm, thus preventing it from moving off the LBWL property. We may discuss at a later date how the coal dust from the berm can also be controlled.

In addition to the berm, the LBWL has also planted trees between the coal pile and ash handling site to create a wind break. D. Allen said that the wind speeds can get up to 75 mph because the topography (buildings and flat land) surrounding the ash handling and coal pile creates a wind tunnel effect, in which she said there is really nothing to control the dust at those wind speeds, except potentially a wind break. Plans and photos of the final location of the trees were submitted in December 2015.

T. Gregorski provided me with LBWL Erickson's Malfunction Abatement Plan for particulate emissions. The current version is April 2015 (attached).

As required under the Utility MACT, 40 CFR Part 63, Subpart UUUUU, a carbon absorption system has been installed to remove mercury from the boiler's exhaust stream. M. Nelson explained during the 2016 inspection that there are 4 injection ports for each ESP where the carbon is injected prior to the gas stream entering the ESP. The gas flow on the stack determines how much carbon is added to the system, but on average, 76 lbs of carbon is used per hour. Tests are run every week on the sorbent traps containing the mercury-laden carbon to determine mercury collection/control.

**EUAUXBLR – Cleaver-Brooks Auxiliary Boiler**
The auxiliary boiler is used to supply the plant heat when EU001 is not operating. The unit is ignited with liquefied petroleum gasoline (LPG), but can also run on fuel oil (see attachment for photo of unit). T. Gregorski said it is run when the plant has outages during the winter or periods of cold in the fall to keep plant temperatures in the 60°'s. This unit is a Cleaver-Brooks CB189-500 boiler, serial number M307U14M, manufactured in 5/7/1971.

*There are currently no Emission Limits or Material Limits for EUAUXBLR at this time.*

*Process/Operational Restrictions & Reporting*
An initial tune-up is required to be conducted according to the procedures in 40 CFR 63.7540(a)(10)(i) through (vi) no later than January 31, 2016. All other tune-ups are required to be conducted every 5 years. The next tune -up will be required by January 31, 2021.

The LBWL submitted their Notification of Compliance Status for 40 CFR 63 Subpart DDDDD for EUAUXBLR in November 2015. In the notification, Mark Matus, former Responsible Official, certified that the initial tune-up was conducted on November 5, 2015 in accordance with the procedures in 40 CFR 63.7540(a)(10)(i) through (vi).

T. Gregorski provided me with the initial tune-up checklist used during the November 2015 tune-up. The following is a list of tune-up activities required under 40 CFR 63.7540(a)(10)(i) through (vi):

- Inspecting the burner
- Cleaning out or replacing any components as necessary
- Inspect the flame pattern and adjust burner to optimize the flame pattern (should be consistent w/ manufacturer's specifications, if available)
- Inspect the controller of the air:fuel – ensure correctly calibrated and functioning properly
- Optimize CO emissions via manufacturer's specs
- Measure [CO] in effluent stream in ppmv, and $O_2$ vol% before and after adjustments – use portable CO analyzer
- Maintain an annual report of the following (and submit to administrator, if requested):
    - [CO] in effluent stream in ppmv, $O_2$ vol% measured at high fire or typical operating load, before and after tune-up
    - Description of corrective actions taken as result of tune-up
    -

Each item in this list has been included in the checklist with a description of how the LBWL will check each of these requirements (see attached).

I reminded T. Gregorski and E. Wright during the inspection the annual compliance report submitted via CEDRI is due every 5 years and that I believed the first compliance report should be submitted by September 15, 2021 for January 31, 2016 – June 30, 2021. After this period, the report should be electronically submitted every 5 years by the 5th year's September 15 deadline.

*Process/Operational Restrictions & Monitoring/Recordkeeping*
The current EUAUXBLR conditions (under "limited use" boiler, PTI 71-15, which was rolled into the ROP) no longer requires the fuel analysis be conducted on every delivery of fuel. In its place, LBWL is only required to show MSDS documentation that the fuel is "ultra-low sulfur diesel." The ROP requires that the maximum sulfur content in the liquid fuel shall not exceed 1 wt%. T. Gregorski provided me with the specifications sheet for ultra-low sulfur diesel (see attachment). Wt% of sulfur according to the analysis is 15 ppm or 0.0015%. This fuel oil is the same fuel oil that is used for startup of EU001.

The auxiliary boiler is limited to 18,327,672,000 BTU/calendar year. LBWL is required to keep monthly fuel use records, and to calculate the actual heat input to EUAUXBLR on a monthly basis to determine compliance with the calendar-year BTU limit. T. Gregorski provided me with the monthly fuel use records for both LPG and fuel

oil for the 2016 calendar year as well as the 2017 calendar year up through July and the actual heat input to EUAUXBLR for each calendar month. Based on the total amount of fuel oil and LPG combined, 31,755 gallons, the annual heat input to EUAUXBLR for the 2016 calendar year equates to 4,391,000,000 BTU. The total amount of fuel oil used in 2017 (through July) was 13,740 gallons, equating to an annual heat input of 1,896,000,000 BTU. (LPG BTU is determined by multiplying usage in gallons by 0.092 MMBtu/gal, fuel oil BTU is determined by multiplying usage in gallons by 0.138 MMBTU/gal).

*There are currently no Design/Equipment Parameters or Testing/Sampling requirements for EUAUXBLR at this time.*

**EUFPENGINE – John Deere CI Clark Fire Pump Emergency Engine**
Scott Mills, Shift Supervisor, verified during the inspection that this unit is only used in instances where there are fire emergencies; however, at one time it was used for pumping water to clean off coal equipment. The fuel oil that is used for the auxiliary boiler and for the EU001 boiler is also the fuel oil that is used in this unit, and is an ultra-low sulfur diesel with a cetane index of 40 mins. This meets the *Material Limits* for this unit. The Model # for this unit is JU6H-UFADM8, Serial # PE6068L239697.

*Emission Limits & Testing/Sampling*
The NMHC + NOx and PM emission standards of 40 CFR 60, Subpart IIII are required to be met by purchasing a certified engine and installing and configuring the engine according to the manufacturer's emission-related specifications. Additionally, LBWL is required to operate and maintain the engine according to the manufacturer's emission-related written instructions to maintain the engine's certification, otherwise initial performance tests are required to be conducted.

T. Gregorski provided me with the John Deere certification sheet for this specific model, which contains the EPA Family Name (DJDXL06.8120) and EPA Certificate Number (DJDXL06.8120-002). Via the following EPA website, https://www.epa.gov/compliance-and-fuel-economy-data/annual-certification-data-engines-and-equipment#large, I confirmed that the LBWL EUFPENGINE is a certified engine.

*Process/Operational Restrictions*
To maintain certification the engine is to be maintained and operated according to manufacturer's emission-related written instructions. I reviewed the "Operation and Maintenance Instructions Manual for JU/JW/JX Models for Fire Pump Applications" which T. Gregorski provided. Attached are excerpts from the 60-page document that apply to weekly testing, the air/exhaust system, and maintenance schedule.

The maintenance schedule on p. 51 states that air filters and the exhaust system should be checked on a weekly basis; every year air filters should be cleaned, fuel and oil filters should be replaced, and the crankcase ventilation system should be checked; and every 2 years the air filters should be replaced. A follow-up report will be written once LBWL can verify that these have taken place over the life of the engine at this site. Maintenance records are not required to be kept per the NSPS, as such no recordkeeping was required in the ROP.

*Process/Operational Restrictions & Monitoring/Recordkeeping*
This engine is allowed to be run for emergency operations, maintenance and readiness testing, and non-emergency situations. Non-emergency operations cannot exceed 50 hours per calendar year. Maintenance and readiness testing operations are allowed up to 100 hours per calendar year if they are recommended by certain entities, such as the manufacturer. The condition that allows them to operate for emergency demand response and for periods with voltage and frequency deviations have been vacated from NSPS IIII, as of May 1, 2015. Records of the operation of EUFPENGINE in emergency and non-emergency services, including the hours of operation and the reason the engine was in operation are required to be kept.

A non-resettable hours meter has been installed on the unit. T. Gregorski provided me with the "Erickson Fire Pump Engine Maintenance Record" where all engine operating hours are recorded (via logging the start and stop hours from the meter) for calendar year 2016 through September 2017). Per p, 16 of the Operation and Maintenance Instruction Manual, weekly testing periods should not exceed 30 minutes per test, and total hours operated on the engine for testing per month should not exceed 2 hours. The majority of the operational hours were conducted for weekly testing on the engine (maintenance/readiness testing) and based on the spot-checks I conducted, the weekly tests are conducted at half-hour intervals, once per week. Maintenance/readiness testing totaled 28.8 hours for the 2016 calendar year, 21.5 of the hours were for weekly maintenance/readiness testing. The remaining hours were considered non-emergency operation to ensure the fire pump system was working sufficiently for fire protection. A total of 15.5 hours has been run on the engine so far for maintenance/readiness testing in 2017.

*Reporting*
All reports have been submitted timely and reviewed for compliance to-date, in addition to the annual and semi-annual reporting.

**FGASHHANDLING (EUASHDC1, 2, 3, 4, 5 –Fly Ash Handling)**
The LBWL Erickson Station has ash handling at both the power plant site and the Millett ash handling site, approximately a quarter mile northeast of the Erickson Station. Ash is transferred from the Erickson Station to the Millett facility through baghouses and pneumatic pipes to the storage building and used as a marketable product or is disposed of. EUASHDC1 is the baghouse located between the east and west storage silos at the Millett facility; EUASHDC2 is the load-out silo bin vent, which controls dust entering the silo; EUASHDC3 is the truck unloading chute baghouse, and only operates when there is truck loadout; EUASHDC4 is the mass storage building dust collector, and EUASHDC5 is the Erickson Station fly ash system baghouse. Attached to this report are photos of each ash dust collector, except EUASHDC5.

Fly ash was not being transported to the various silos during the inspection; however, we were able to witness commercial truck loadout of the fly ash. The loadout chute connects and seals directly to the truck prior to loading. During this process we witnessed no visible emissions from any of the pieces of equipment, baghouse exhaust or truck opening. The baghouse for the mass storage building, EUASHDC4 was the only baghouse operating during the inspection. Due to respiratory hazards from the fly ash in the mass storage building, K. Beson went into the mass storage building to obtain the pressure drop, which he reported to be 1 – 1.2 inches $H_2O$, within the appropriate operating range. LBWL also has a loadout spout for non-marketable fly ash: this is fly ash that was marketable, but because of an excess in fly ash inventory, is created non-marketable by mixing it with a surfactant before shipping it out as waste. The loadout spout from this type of ash is non-telescopic, and does not attach to vehicles. This could be a potential source of fugitive fly ash emissions, but we did not observe loadout of the nonmarketable fly ash the day of the inspection.

Since the finalization and compliance date of the Utility MACT (MATS), according to K. Beson during the 2016 inspection, the LBWL has begun to purchase "concrete friendly carbon" for use in controlling mercury emissions. This type of carbon allows the LBWL to still produce sellable fly ash for use in concrete production. K. Beson said they go through ~ 22 tons/month of the carbon.

Once trucks are loaded with fly ash, the truck driver drives over to a platform (photo in 2016 inspection report) where he climbs to the top of the truck to close the "lids" where fly ash loads into the truck. There is fugitive dust from this process (as witnessed during a 6/27/16 visit). K. Beson explained that the platform is required by OSHA.

*Follow-up Fly Ash Complaint Discussion & Associated Violations*
Since December 15, 2014 up through April 2016, the AQD has received 3 complaints from John Pemberton (who owned a business directly east of the LBWL coal pile and fly ash handling facility through the fall 2016); John Pemberton has since sold this property. The AQD has had no complaints from the new owners of the property. With all 3 complaints, J. Pemberton expressed concern about coal dust accumulating on his vehicles stored outside, deposits within his business via roof vents, as well as coal dust getting washed into his garage during rainy periods. For each of the complaints, samples were taken to determine microscopic composition. For all 3 sets of samples, the fraction of the samples containing particulate similar in appearance to coal and similar in appearance to fused and unfused fly ash varied: Coal dust and fly ash (fused and unfused) composed ~ 10%-80% of the samples. Samples were taken in various locations around the property including soil, vehicles stored outdoors, off the pavement, etc.

Because of the concerns with fly ash on the complainant's properly I discussed with D. Allen the possible sources of the fly ash during the June 2015 inspection. D. Allen said that sometime either in February or March 2015 she noticed that fly ash was being emitted through the cracks in the seals of the Mass Storage building's vehicle entrance overhead doors. She said that she immediately had the system shut down, and kept it shut down until the baghouse was fixed, which she said involved replacing all the bags in the baghouse. She said that under normal operation the building is under vacuum, and when the baghouse malfunctioned it placed positive pressure on the system, forcing the fly ash out through the cracked seals on the door. D. Allen said that they have ordered new seals, door rollers, and a new door, all of which will be installed on the outside of the building so that visual inspection of the door and seals can be done more easily to detect any wear.

Another potential source of the fugitive fly ash that D. Allen pointed out during the June 2015 inspection was the loadout chute for the trucks. D. Allen pointed out that there were holes in the chute and in the seal that connects

to the trucks for loadout of the fly ash. While onsite during the June 23, 2016 inspection, I took photos of the new door and loadout chute, which are included in that inspection report. Both appeared to be in good condition: there were no cracks or seal breakages that I could see.

During the 2016 inspection, Mark Nelson explained that front-end loaders enter into the main ash storage building using this door. Once inside, the loaders push the fly ash over the grates located inside the building so that conveyors can carry the fly ash out of the storage building and into the storage silos or into the loadout silo. He said that any of the fly ash that becomes hardened and too compact to be pushed through the grates is pushed out of the main storage building and stored in a pile outside until a truck picks it up to be landfilled. He said that a landfill truck comes once per week to pick up this pile of fly ash.The pile was not enclosed and is exposed to the elements.

On June 27, 2016 Julie Brunner and I returned to the site to collect samples to determine if fly ash was located elsewhere on the property, in addition to determining how much fly ash was in the fly ash piles. K. Beson was not present for this, but a contractor was. We took samples from two sections of the fly ash pile, samples from the "dirt" underneath the loadout chute, and a sample from ventilation piping from the east blue loadout silo, where it appeared that fly ash was escaping. The sample results were received on July 12, 2016, and indicated that 80% of each sample was composed of a mixture of fused and unfused fly ash.

It was particularly dusty that day with high winds. Dust from the unpaved plant yard was blown around the property and to the east towards J. Pemberton's property. Walking on the unpaved yard also created excessive amounts of dust.

As a result of observing how loose and air-borne the "dirt" on the plant yard could become during the 6/27/16 visit, I returned to the fly ash handling facility on June 30, 2016 to take additional samples from the unpaved parts of the road, to confirm the presence of fly ash. Again, sample results indicated that 80% of each sample was a mixture of fused and unfused fly ash.

The results of both sets of samples suggested that in addition to fly ash being stored in piles outside without containment, fly ash has also been distributed in high concentrations throughout the unpaved plant yard. Storage of fly ash outside without containment and fly ash being present throughout the plant yard is considered a violation of Rule 370 which requires that the collection and disposal of air contaminants be done in a manner to minimize the introduction of the contaminants to the outer air. Additionally, this is considered a violation of Rule 901: failure to meet Rule 370 has caused fly ash to be dispersed to surrounding properties, including John Pemberton's property, where fly ash has been found in each sample that has been taken since December 2014, from various locations and objects on his property. A violation notice was issued to address these issues. The response to the violation notice included updating LBWL's Fugitive Dust Management Plan and Malfunction Abatement Plan for the fly ash handling.

In response to the violation notice the LBWL has changed their practice of handling and disposing of the non-marketable fly ash. All non-marketable fly ash is wetted with a water/surfactant mix prior to removing it from the mass storage building. From the mass storage building, front end loaders will dump the fly ash into a landfill roll-off bin located outside the mass storage building. The bin's lid is then closed to prevent fugitive dust from being re-entrained into the ambient air. During the inspection, I noted that there was no lid on the bin. T. Gregorski explained that when the area recently had a wind storm, the lid was blown off the roll-off bin and LBWL staff were not able to find it. She explained that they will have a lid again when Granger brings a new roll-off bin the beginning of the week of August 28th. I observed the contents of the bin: the fly ash had all been crusted over and did not appear to be capable of being re-entrained into the ambient air at that time. I was therefore not concerned about fugitive emissions from this bin.

Housekeeping throughout the plant yard and in the truck loadout area has improved; however, I noted that there was some residual fly ash in the truck loadout area, as well as in the location of the unpaved plant yard where the fly ash pile had been, identified by its characteristic "poofing" when it's disturbed. I brought this to LBWL staff's attention. They said that they would work with the ash handling staff to determine the best way to proceed with ensuring that fugitive fly ash throughout the plant yard is minimized as best as possible on a daily basis. I explained to LBWL staff my concern that strong winds could easily pick up the fly ash that is present on the ground and potentially allow it to leave the property. Efforts therefore, should then be focused on minimizing fugitive fly ash at all times. The main plant roads appeared well-watered.

All locations where fly ash had been seen accumulating during the 2016 inspection have been cleaned up, including the area just outside the main storage building door and under the ventilation piping of the silos.

T. Gregorski verified that $CaCl_2$ is used to minimize fugitive dust from the unpaved plant yard.

*Emission Limits & Testing/Sampling*
Particulate emissions are limited to 0.10 lb/1000 lb exhaust gas (dry gas basis), and LBWL is only required to verify compliance with this emission rate per request from the AQD. There has not been a concern at the facility to require verification of emission rates. If no visible emissions are seen from the baghouses, it can safely be assumed that LBWL is meeting their PM limits. See the *Monitoring/Recordkeeping* discussion for validation that the baghouse has been operating properly (no visible emissions).

*There are currently no Material Limits for FGASHHANDLING at this time.*

*Process/Operational Restrictions*
The LBWL is required to implement and maintain a MAP. If the AQD determines that the MAP is inadequate, they may request modification to the plan to address those inadequacies. The AQD requested that the MAP be updated to further address malfunctions of the equipment that were cited during the 2016 inspection and which were documented in the violation notice. Julie Brunner and I worked with the LBWL to update the plan in order to address the cited violations. The final revisions were submitted 4/11/17, and I approved the plan on 5/9/17. The updates included requiring training for all personnel responsible for maintaining the baghouses on an annual basis. T. Gregorski provided me with a list of personnel that attended the 6/5/2017 training on the Malfunction Abatement and Fugitive Dust Management Plans, attached. Staff onsite for the August 24, 2017 inspection of the ash handling equipment were Keith Beson (ash handling coordinator), a station shift supervisor (which changes by shift, 2 shifts per day), and Roger Simmons (maintenance planner/work management system operator). Each of these positions is described in the MAP with their respective responsibilities.

*There are currently no Design/Equipment Parameters for FGASHHANDLING at this time.*

*Monitoring/Recordkeeping*
LBWL is required to conduct random visible emissions observations at least once on a daily basis on EUASHDC1-5 when they are operating, and the results of these VE readings are to be recorded. LBWL is also required to record the differential pressure at least once daily, as acceptable CAM monitoring. Operating outside of 1-5" $H_2O$ pressure differential is considered an excursion per MI-ROP-B4001-2015, and an immediate VE observation is required to be conducted and the results recorded, including the device ID, time, date, pressure drop, duration in minutes and the initials of the observer for those periods of opacity outside of the indicator range. These two records are kept under LBWL's "Millet Ash Handling Daily Differential Pressure and Visible Emission Readings." These records also include Plant Yard Walkthrough documentation conducted on a daily basis noting any piles of fly ash that need to be cleaned up, as required in the Fugitive Dust Plan.

I requested these records for January – July 2017 for all ash handling units. I reviewed all documents, and attached to this report is a snapshot of these records from June 2017. The records indicate that all baghouses were operated within the 1-5" $H_2O$ acceptable pressure drop range for EUASHDC1-4, except for the few occasions where a reading of 0 in $H_2O$ were recorded. During those times the records indicate that no VE's were detected.

The records for EUASHDC5 are recorded under a separate set of recordkeeping sheets, which I also reviewed for January – July 2017. All records indicate that EUASHDC5 was operated within the appropriate operating range of 1-10 in. $H_2O$, and no VE's were detected.

The fly ash handling contractor documented that there were no observed fly ash piles throughout the plant yard and therefore, there was no need to document cleanup activities, as indicated by the daily records from January – July 2017. The fly ash handling contractor was not included on the attendance list for the training on the MAP and Fugitive Dust Plan on 6/5/17. I will bring this to T. Gregorski and L. Myott's attention to ensure that the fly ash handling contractor is aware of his responsibilities per the MAP and Fugitive Dust Plan.

The MAP also requires a Fugitive Dust Log, where any emissions that reach the facility boundary shall be recorded. T. Gregorski provided me with the daily Fugitive Dust Logs from January – July 2017 (attached). All records indicate that there have been no fugitive dust complaints, nor any events where emissions have reached the facility boundary during this time period.

LBWL is required to visually inspect the pneumatic piping (from the Erickson Station to the ash handling facility) for leaks at least once per day and keep record of any visible emissions observed during these visual

inspections when the ash handling pneumatic piping is being operated. T. Gregorski, at my request, provided me with daily shift logs for the month of June 2017, attached. The log includes the day and time the visible emissions check was completed and the results, if any. If fugitive dust is observed or any other issues during this check, they enter a work order in LBWL work management system to address and fix the problem. T. Gregorski also provided me with the work orders that were submitted between March and July 2017. No issues with the pneumatic piping system were included in the work orders. Work orders were predominantly submitted for maintenance of the storage silos at the fly ash handling facility.

*Reporting*
All reports have been submitted timely and reviewed for compliance to-date, in addition to the annual and semi-annual reporting.

*Other Requirements*
A Fugitive Dust Control Program is required to be implemented, and modified based on approval by the District Supervisor. The current Fugitive Dust Plan was updated in April 2017 as part of LBWL's response 2016 violation notice. Based on the inspection and review of records LBWL has complied with their Fugitive Dust Control Program for minimizing fly ash fugitive dust.

**FGCOLDCLEANERS**
The Erickson Station currently has 1 cold cleaner in their maintenance room that was installed in 1998. Crystal Clean solvent is used in this unit. T. Gregorski provided me with a photo of the operating instructions and the unit, attached. The cover was closed, is not a heated unit, and is approximately 7.5 square feet of surface area. This unit is exempt from a permit to install per Rule 281(h) because the air/vapor interface is less than 10 $ft^2$. The reid vapor pressure for the mineral spirits (CAS 64742-47-8) is less than 0.1 psia at 38°C/100°F, which means that a mechanically-assisted cover is not required because the reid vapor pressure (based on another SDS found on the internet for this compound, also attached) is less than 0.3 psia and is not heated. LBWL Erickson is in compliance with Part 7 Rules for New Cold Cleaners.

**Compliance Statement:**
The LBWL Erickson Station is in compliance with MI-ROP-B4001-2015 at this time.

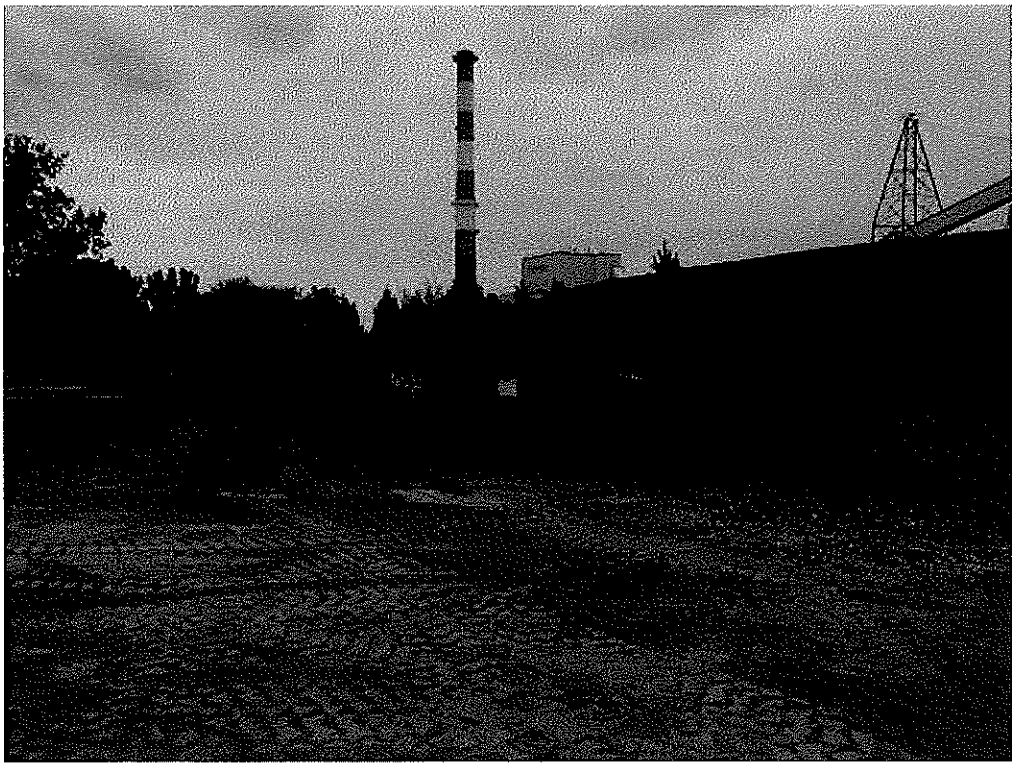

**Image 1(Roll-off fly ash bin) :** Roll-off which non-marketable, "chunky" fly ash is stored, prior to disposal.

**Image 2(Bin fly ash) :** Note the fly ash has been crusted over.

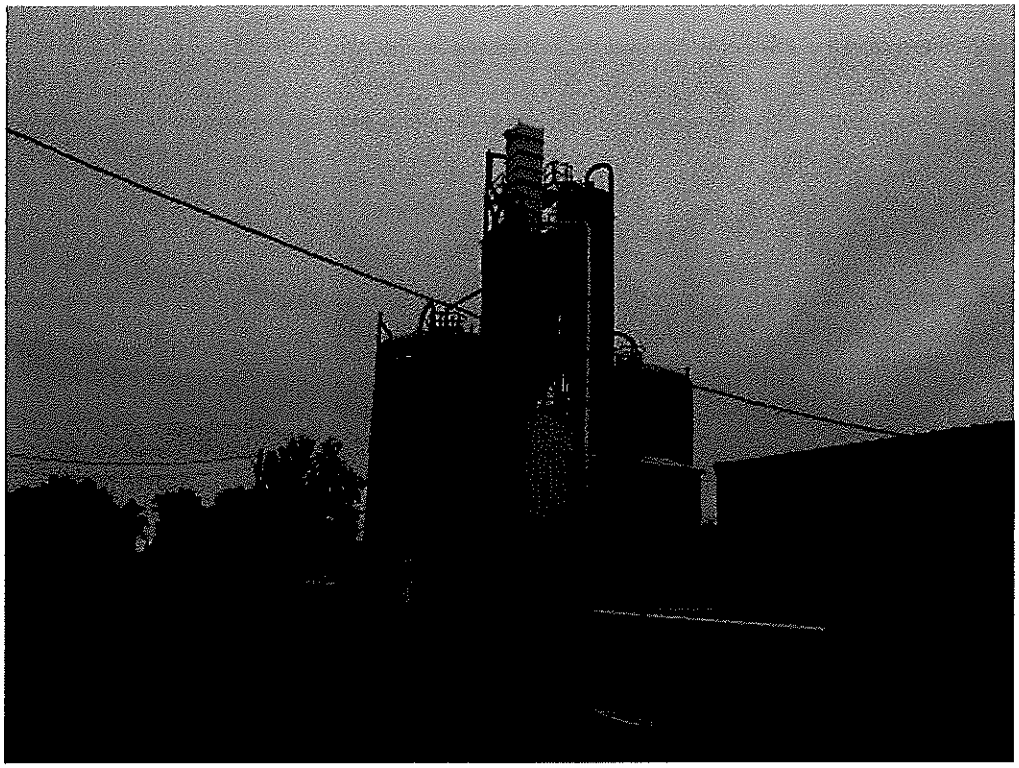

**Image 3(Fly Ash Handling) :** Entire facility

**Image 4(Pneumatic Piping) :** A portion of the pneumatic fly ash piping system entering the mass storage building

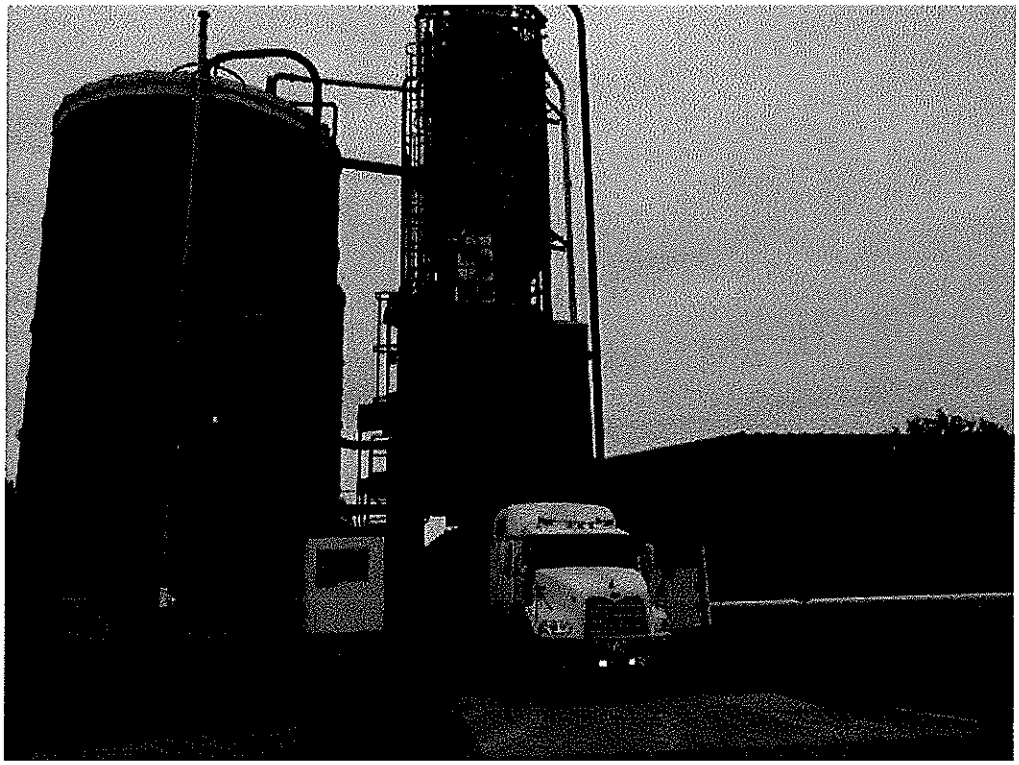

**Image 5(Ash loadout) :** Commercial Ash loadout - Note there are no VE's during this process.

**Image 6(EUASHDC2) :** Photo of EUASHDC2 - loadout silo baghouse

**Image 7(EUASHDC3) :** Truck loadout silo chute baghouse (small white unit located near the base of the silo)

**Image 8(EUASHDC1) :** East and West storage silo baghouse (between the two blue silos)

**Image 9(Non-market Loadout) :** Non-marketable fly ash loadout chute. Fly ash mixed with surfactant prior to loadout through chute.

**Image 10(Commercial ash Load) :** Commercial ash loadout chute - telescopic

**Image 11(Loadout Bay) :** Entirety of loadout bay - for both commercial and nonmarketable ash

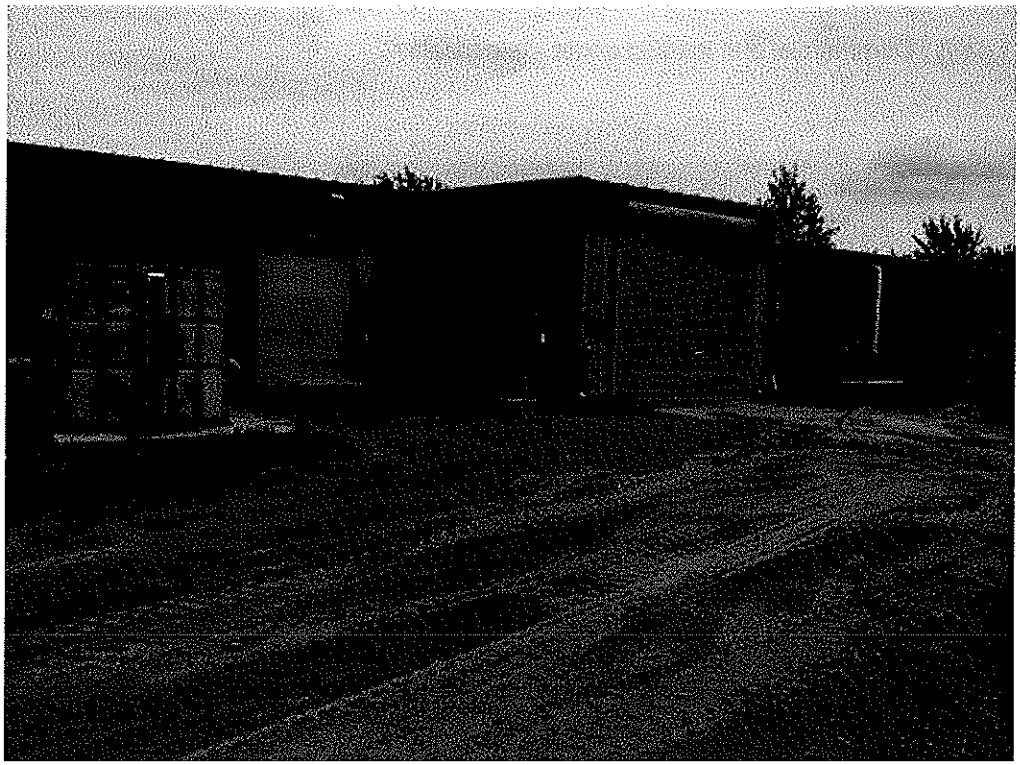

**Image 12(Plant yard) :** Plant yard post-fly ash cleanup. Note there are no fly ash piles present.

NAME _____ DATE 9/20/17 SUPERVISOR _____