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Page 1 of 9

FV2018 Sched Insp SM CMS

DEPARTMENT OF ENVIRONMENTAL QUALITY AIR QUALITY DIVISION

ACTIVITY REPORT: Scheduled Inspection

VI 190042472		
FACILITY: PONTIAC OSTEOPATHIC HOSPITAL		SRN / ID: M1968
LOCATION: 50 N PERRY ST, PONTIAC		DISTRICT: Southeast Michigan
CITY: PONTIAC		COUNTY: OAKLAND
CONTACT:		ACTIVITY DATE: 11/20/2017
STAFF: Iranna Konanahalli	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: FY 2018 SM CMS sc Osteopathic Hospital, a McLaren	heduled inspection of McLaren Oakland, dba POH F Health Service	Regional Medical Center (M1968), fka Pontiac
RESOLVED COMPLAINTS:		· ·

McLaren Oakland (M1968) POH Regional Medical Center (M1968) fka Pontiac Osteopathic Hospital A McLaren Health Service 50 N. Perry St. Pontiac, Michigan 48342-2217

www.mclaren.org

Phone: 248-338-5382 E-mail: Matthew.Ronan@mclaren.org

PTI Nos.: 45-98 (ROP Synthetic Minor or opt-out PTI No. 45-98, SC 13 limits: 87.7 tons of sulfur dioxide per year, 31.5 pounds of sulfur dioxide per hour and max. 0.5% S together with SC14: 2,506,000 gallons / year; 140,000 BTU per gallon) dated April 23, 1998, for three identical 500-hp (\approx 21 MM BTU per hour) boilers and 134-97 dated April 28, 1997, for two EO sterilizers. Two voided PTI Application Nos. 46-98 and 46-98 (4/23/1998) and 47-98 (4/23/1998) for two 500-hp boilers are also incorporated into this permit for three boilers.

PTI void: PTI No. 27-84I for Pathological Incinerator (April 10, 2012 based upon FY 2012 inspection). Removed about 1995.

PTI application voids: PTI Nos. 46-98 (4/23/1998) and 47-98 (4/23/1998) for two 500-hp boilers. These two boilers are incorporated into PTI No. 45-98 (3 boilers including these 2).

VNs: AQD issued Violation Notices dated February 19, 1998 (as a result, POH obtained ROP Synthetic Minor PTI No. 45-98), October 28, 2011 (Boiler NSPS Dc and EO sterilizers) and several VNs (failure to submit MAERS in a timely manner). POH is habitually tardy about MAERS.

POH Regional Medical Center's three (3) identical 500-hp principally natural gas fired steam boilers with fuel oil backup are subject to: New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR, Part 60, Subpart Dc).

Fee: Category II (fuel oil back-up for NSPS Dc boilers).

POH Regional Medical Center's boilers (3) may be subject to: NESHAP / MACT 6J, 40 CFR Part 63, Subpart JJJJJJ / 6J National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers, Page 15554, Federal Register / Vol. 76, No. 54 / Monday, March 21, 2011 / Rules and Regulations / Final rule. This rule does NOT apply to boilers that burn only gaseous fuels or any solid waste. The boilers are deemed to be natural gas fired only if fuel oil is used for less than 48 hours per year.

POH Regional Medical Center's emergency diesel (CI RICE) generators may be subject to: CI RICE MACT 4Z, Area Source NESHAP / MACT ZZZZ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines and National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines / Final rule (Page 3568, Federal Register / Vol. 73, No. 13 / Friday, January 18, 2008 / Rules and Regulations / Final rule).

Not subject to (CI RICE Diesel generators were manufactured before April 1, 2006, manufactured before April 1, 2006): 40 CFR Part 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE) Page 39154 Federal Register / Vol. 71, No. 132 / Tuesday, July 11, 2006 / Rules and Regulations /Final rule).

POH Regional Medical Center's ethylene oxide sterilizers (2) are subject to: Area Source NESHAP / MACT 5W: Ethylene Oxide (EO) sterilizers are subject to Area Source NESHAP / MACT 5W, National Emission Standards for Hospital Ethylene Oxide Sterilizers, 40 CFR Part 63, Subpart WWWWW, Page 73611, Federal Register /Vol. 72, No. 248 / Friday, December 28, 2007 /Rules and Regulations / Final rule. Hospital Sterilizers are not subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) for Ethylene Oxide Commercial Sterilization and Fumigation Operations (40 CFR, Part 63, Subpart O).

On November 20, 2017, I conducted a level-2 **FY 2018 SM CMS scheduled** inspection of McLaren Oakland, dba POH Regional Medical Center (M1968), fka Pontiac Osteopathic Hospital, a McLaren Health Service, located at 50 N. Perry St., Pontiac, Michigan 48342-2217. The inspection was conducted to determine compliance with the Federal Clean Air Act; Article II, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994, PA 451; and Michigan Department of Environmental Quality, Air Quality Division (MDEQ-AQD) administrative rules.

During the inspection, Mr. Matthew Ronan (Phone: 248-338-5382; Fax: 248-338-5127; Cell: 248-941-2499; Pager: 248-407-0752; E-mail: Matthew.Ronan@mclaren.org), Director, Facilities and Maintenance, and Mr. Tom Tesolin (Phone: 248-338-5142; E-mail: Tom.Tesolin@mclaren.org), Biomed Manager, assisted me.

Ms. Jennifer L. Distefano (Phone: 248-338-5138; Fax: 248-338-5060; Cell: 734-347-6501; Pager: 248-407-3523 E-mail: Jennifer.Distefano2@mclaren.org) CSR (Central Sterile Reprocessing) Manager, Sterilization, was not present.

Jayme Strehlke (248-338-5138) CSR Manager, Sterilization, separated about December 2014. Mr. Robert Pickup (Phone: 248-338-5382; Fax: 248-338-5127; Cell: 248-705-3166; E-

mail: robert.pickup@pohmedical.org / robert.pickup@mclaren.org), Director, Buildings and Grounds, retired about April 17, 2017.

Pathological Incinerator (PTI No. 27-841 - void)

Pathological incinerator has been permanently removed since 1995. PTI No. 27-84I was voided on April 10, 2012 based upon FY 2012 inspection.

Ethylene Oxide Sterilizers (PTI No. 134-97) – Idled since May 2015

Two (2) identical AMSCO (Steris Co) Model 3017 Ethylene Oxide (EO) Sterilizers are present; one unit is stacked above the other. Only one operates at any given time. The sterilizers use 100-gram EO canister; one canister per EO sterilization cycle. 13-hour sterilization cycle consists of 1 hour of EO exposure to destroy pathogens and 12 hours of aeration. An infectious biological sample is kept inside along with surgical instruments and tested at the end of the process in order to ensure thorough sterilization. Of two EO sterilizer machines (one stacked above the other), only one machine is used at a given time. One common catalytic oxidizer, which oxidizes ethylene oxide to water and carbon dioxide, and which serves both sterilization units, is present.

Ethylene oxide emissions are controlled using Donaldson EO Abator. The Abator converts ethylene oxide (C_2H_4O) to carbon dioxide and water. The reaction is accompanied by release of heat (exothermic) and is assisted by a proprietary catalyst.

AQD issued a Violation Notice dated October 28, 2011, for failure to keep EO usage records & perform required calculations and to operate properly EO catalytic abatement (PTI No. 134-97, SCs 17 & 18, Appendix A). Please refer to the October 28, 2011, Violation Notice for details.

AQD received a violation response letter dated November 14, 2011, that attached with it NSPS Dc Initial Notification and that stated that sulfur content records, natural gas & fuel usage records, EO sterilization records would be kept and the required calculations would be performed.

The EO sterilization system is equipped with an interlock system such that the sterilization process is shut down if the required temperature at the catalyst bed of a common catalytic abatement is not attained and maintained (280-550 °F). Steris Company (800-333-8828) installed temperature chart about February 2012. I confirmed that charts are installed (March 29, 2012). The sterilization area of the hospital is equipped with two EO monitoring alarms. Employees' health is monitored.

December 2014 EO usage is 21 canisters, i.e., 2100 grams with attendant ethylene oxide (EO) emissions of 2.1 grams per month. In CY 2014, 219 canisters (100 grams EO per canister, i.e. 21,900 grams usage) were used with attendant ethylene oxide (EO) emissions of 21.9 grams per year (PTI No. 134-97, SC 13 limit: 73 grams per year emissions and SC 14 limit: 730 canisters or 73,000 pounds per year or 161 pounds per year EO usage). POH is modified the permit's Appendix A for the site-specific use. The required record-keeping and attendant calculations according the Appendix A were done (PTI No. 134-97, SC 16: records, based FY 2015 inspection records kept, SC 17: Appendix A calculations and SC 19: temperature charts present).

Testing is not required at this time especially considering that EO sterilizer will be phased out soon (PTI No. 134-97, SC 15: testing may be required).

Per FY 2015 inspection, EO batches and canister usage records were kept. One canister per batch is used. Per Thursday, April 23, 2015, e-mail from Jennifer L. DiStefano, CIS, CRCST, EO usage is:

- 1. 21 canisters per month, 2100 grams per month usage, 2.1 grams of emissions per month (Dec 2014)
- 2. 219 canisters per year, 21,900 grams per year usage, 21.9 grams of emissions per year (CY 2014)

Area Source NESHAP / MACT 5W: Ethylene Oxide (EO) sterilizers are subject to Area Source NESHAP / MACT 5W, National Emission Standards for Hospital Ethylene Oxide Sterilizers, 40 CFR Part 63, Subpart WWWW, Page 73611, Federal Register /Vol. 72, No. 248 / Friday, December 28, 2007 /Rules and Regulations / Final rule. The owner or operator of an existing (installed before November 6, 2006) area source must comply with this area source NESHAP by December 29, 2008. AQD has decided not to take delegation of these standards and therefore no attempt has been made to evaluate the POH's compliance with NESHAP / MACT 5W. For questions regarding the Area MACT 5W, POH must deal directly with Region 5, US EPA, Chicago.

About March 2015, one Hydrogen Peroxide (H2O2) Plasma Sterrad 100 NX equipment for sterilization was purchased and installed. The unit is manufactured by Advanced Surgical Products, a subsidiary of Johnson and Johnson. 98 percent of surgical instruments are validated for H2O2 plasma. Effective May 2015. ethylene oxide (EO) usage was reduced to zero. Eventually, EO sterilizer will be removed as cost of this process is extremely high due to indoor air monitoring and above all employee health (periodic medical exams) monitoring; the EO units are still present on site but not used since May 2015.

Since May 2015, EO sterilizers have not been used. I asked Mr. Tesolin to seal the EO units with tape and post "DO NOT USE" signs; he immediately did that.

Three NSPS Dc Boilers with Fuel Oil Back-up (ROP opt-out PTI No. 45-98).

In 1995, POH Medical Center installed three boilers at the Pontiac Hospital facility. Each boiler has a rated or design capacity of 21 million BTU per hour (500 hp). Each boiler of capacity 21 million BTU per hour (500 hp), with fuel oil back-up, was installed after June 9, 1989 (1995). Hence, these boilers (3) are subject to federal New Source Performance Standards (NSPS Dc) for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR, Part 60, Subpart Dc). Hence, pursuant to Act 451 of 1994, as amended, § 324.5522 (2)(b), POH facility is subject to Category II air quality fees. In addition, pursuant to Rule 336.1282(2)(b), the boilers burning sweet natural gas (up to 50 million BTU per hour) are exempt from Rule 336.1201 (Permit-to-Install). Furthermore, pursuant to Rule 336.1201 (Permit-to-Install) aubject to the condition that fuel oil (limited to No.1 and No.2) burnt has sulfur content no greater than 0.40 percent by mass. It may be noted that NSPS Dc allows sulfur content up to 0.50 percent sulfur by mass (0.5 pounds of sulfur dioxide per million BTU heat input).

Because each boiler has design capacity over 20 million BTU per hour, three identical boilers (21 MM BTU / hour CleverBrook CB Packaged Boilers Model CB-200-500 hp-1507, max. 150

psi steam pressure) are NOT exempt from Rule 336.1201 (Permit-to-Install). As a matter fact, AQD (Rem Pinga) issued Violation Notice (VN) dated February 19, 1998. As result of the VN, POH obtained ROP opt-out PTI No. 45-98 dated April 23, 1998.

Rule 336.1201 requires an air use permit be obtained prior to installation, construction, reconstruction, relocation, or alteration of any process or process equipment that may be a source of an air contaminant.

The NSPS Dc boilers are:

SL No. OLO-93788: CleverBrook CB Packaged Boilers Model CB-200-500 hp-1507, max. 150 psi steam pressure, 21 MM BTU per hour, principally natural gas fired, ULSD Diesel (15 ppm sulfur) as backup fuel.

SL No. OLO-93789: CleverBrook CB Packaged Boilers Model CB-200-500 hp-1507, max. 150 psi steam pressure, 21 MM BTU per hour, principally natural gas fired, ULSD Diesel (15 ppm sulfur) as backup fuel

SL No. OLO-93922: CleverBrook CB Packaged Boilers Model CB-200-500 hp-1507, max. 150 psi steam pressure, 21 MM BTU per hour, principally natural gas fired, ULSD Diesel (15 ppm sulfur) as backup fuel

Potential-to-Emit (PTE)

Thousand = M = $1,000 = 1 \times 10^3$ and Million = MM = $1,000,000 = 1 \times 10^6$

Based upon emission factor = 100 pounds of NOx per MM CF NG burned, 1 CF of NG = M BTU, continuous operation of boilers = 8,760 hours per year, 2,000 pounds per ton,

1 MM BTU per hour \equiv 0.53 tons of NOx per year emissions for 1 MM BTU per hour NG fired boiler.

Considering space heating boilers operate less than half time in the year (heating season only), 1 MM BTU per hour \equiv 0.26 tons of NOx per year.

Furthermore, it may be noted that all boilers do NOT operate at the same time; some boilers are backup boilers.

Total boiler capacity at Pontiac Osteopathic Hospital = 63 MM BTU per hour. PTE = 63 * $0.42 = 16.58 \approx 17$ tons of NOx per year.

NSPS Dc Revisions:

- 1. 72 FR 32759 = Page 32759 Federal Register / Vol. 72, No. 113 / Wednesday, June 13, 2007 / Rules and Regulations / Final Rule to add compliance alternatives and to revise certain recordkeeping and reporting requirements.
- 2. 74 FR 5091 = Page 5091 Federal Register / Vol. 74, No. 17 / Wednesday, January 28, 2009 / Rules and Regulations / Final Rule to correct technical and editorial errors.

The NSPS revisions simplified the natural gas usage recordkeeping.

AQD issued Violation Notice dated October 28, 2011, for failure to comply with NSPS Dc and PTI No. 45-98 (SCs 13, 18,19) requirements. The ROP opt-out permit was obtained to limit sulfur dioxide emissions (PTI No.: 45-98, SC 13 limits: 87.7 tons of sulfur dioxide per year, 31.5 pounds of sulfur dioxide per hour and max. 0.5% S, 140,000 BTU per gallon) with a corresponding fuel usage limit (PTI No.: 45-98, SC 14 limit: 2,506,000 gallons / year No. 2 fuel oil, 0.5% sulfur; 140,000 BTU per gallon). Please refer to October 28, 2011, Violation Notice for details. AQD received a violation response letter dated November 14, 2011, that attached with it NSPS Dc Initial Notification and that stated that sulfur content records, natural gas & fuel usage records, EO sterilization records would be kept and the required calculations would be performed.

Only off-road (no road tax) ULSD containing 15 ppm sulfur (S) is fired as backup fuel oil (PTI No. 45-98, SC 13 limits: 87.7 tons of sulfur dioxide per year, 31.5 pounds of sulfur dioxide per hour and max. 0.5% S together with SC14: 2,506,000 gallons / year; SC 18: sulfur in fuel testing not required 15 ppm sulfur ULSD).

The boilers are test fired once per year using ULSD (common fuel between generators and boilers) to satisfy the hospital certification requirements (PTI No. 45-98, SC 13, 15 limits: 2,506,000 gallons per year and fuel oil usage records).

POH is submitting MAERS data and uses only ULSD 15 ppm fuel (PTI No. 45-98, SC 19: monitoring and emissions records need not be submitted at this time as long as ULSD off road diesel is used).

On April 10, 2015, one load of ULSD received: 651 gallons for this load, \$1,340.41. No further ULSD delivery records are available.

Natural gas meter readings are taken once per week to compare to utility bills:

- 1. January 07, 2014: 77,355
- 2. December 29, 2014: 137,035
- 3. CY 2014 Natural gas usage (approx.): 59,680 M SCF per year.

Dec 2015 thru Nov 2016: 53 MM SCF of natural gas per year

As the boilers are designed to be capable of burning liquid fuels such as fuel oil, POH Regional Medical Center's boilers are subject to: NESHAP / MACT 6J, 40 CFR Part 63, Subpart JJJJJJ / 6J National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers, Page 15554, Federal Register / Vol. 76, No. 54 / Monday, March 21, 2011 / Rules and Regulations / Final rule. This NESHAP / MACT 6J rule does NOT apply to boilers that burn only gaseous fuels or any solid waste; the POH's boilers are designed for liquid fuels, such as fuel oil, as well.

AQD has decided not to take delegation of these standards and therefore no attempt has been made to evaluate the POH's compliance with NESHAP / MACT 6J.

The final rule sets different requirements for boilers based on their size, which is defined as follows:

✓ Large area source boilers have a heat input capacity equal to or greater than 10 million British thermal units (Btu) per hour (MMBtu/hr).

✓ Small area source boilers have a heat input capacity less than 10 MMBtu/hr.

POH has three large area source MACT 6J natural gas fired boilers (with fuel oil back-up) based upon design capacity (21 MM BTU / hour CB Packaged Boilers). An affected source is an existing source if you commenced construction or reconstruction of the affected source on or before June 4, 2010. Hence POH boilers are existing boilers concerning the NESHAP (installed in 1995). Existing area source boilers (biomass and oil) are required comply with the following:

- 1. Tune-up every other year (biennial)
- 2. No numeric emission limits

A gas-fired boiler that periodically fires liquid fuels during gas curtailment and supply emergencies or for periodic (not to exceed a total of 48 hours during any calendar year) testing is still considered a gas-fired boiler. POH boilers may be considered gas fired if records that prove 48-hour-limit are kept. In that case (< 48 hours), the NESHAP / MACT 6J rule does NOT apply to boilers that burn only gaseous fuels or any solid waste (solid waste rules apply).

The following notification requirements may apply:

- 1. Initial Notification: no later than September 17, 2011
- 2. Notification of Compliance Status subject to tune-ups: No later than July 19, 2012

AQD has decided not to take delegation of these standards and therefore no attempt has been made to evaluate the POH's compliance with NESHAP / MACT 6J.

POH was subject to 40 CFR Part 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters (Federal Register / Vol. 69, No. 176 / Monday, September 13, 2004 / Page 55218 / Rules and Regulations). However, on June 8, 2007, US Court of Appeals had mandated that EPA vacate the Boiler MACT Rule in its entirety; in the interim period, 112(j) MACT permit was required. US EPA re-promulgated the Area Source Boiler MACT as NESHAP / MACT 6J

01/09/12 - The U.S. District Court for the DC Circuit vacated the EPA's May 18, 2011, notice that delayed the effective dates of the Major Source Boiler MACT rule. The effective dates of the final rules published in the Federal Register on March 21, 2011 (76 FR 15608 and 76 FR 15704), are delayed until such time as judicial review is no longer pending or until the EPA completes its reconsideration of the rules, whichever is earlier.

12/23/11 - The EPA published the Major Source Boiler MACT reconsideration proposal (40 CFR 63, subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, Page 80598 Federal Register / Vol. 76, No. 247 / Friday, December 23, 2011 / Proposed Rules). The EPA will accept comment on the reconsideration proposal until February 21, 2012.

Emergency diesel fuel (2) and natural gas (1) fired generators

The three emergencygenerators of capacity 1,000 kW / 1 MW (ULSD), 230 kW / 0.23 (NG) MW and 288 kW / 0.28 MW (ULSD) were installed as follows:

- 1. 1,000 kW (1 MW) emergency diesel generator: Caterpillar Diesel Generator Model 3513, 1,000 kW (1 MW). 1250 KVA, PF = 0.8. Installed 1995.
- 2. 230 kW (0.23 MW) emergency NG generator: Waukesha NG fired Model VCL 00G generator. Installed in 1975.
- 3. 288 kW (0.28 MW) emergency diesel generator: Caterpillar Diesel Generator Model SR-4B, 288 kW (0.288 MW). Installed 1998.

The generators are test fired: once per week for 10 minutes, once a month for 30 minutes and once per year for 4 hours for full load testing.

Area RICE MACT 4Z Diesel Emergency Generator -

Change oil/filter & inspect hoses/belts every 500 hours or annually; inspect air cleaner (CI) or spark plugs (SI) every 1,000 hours or annually. No emission standards.

These activities appear to be performed as part of preventive maintenance.

PTI Exemption - CI RICE Engines

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Hence, a diesel generator up to 1 MW is exempt from Rule 336.1201 (Permit-to-Install) pursuant to Rule 336.1285(2)(g). It may be noted that some engines convert heat to work more efficiently than others. Recent engine designs have efficiencies up to 40% for heat to shaft work conversion. Converting work to electricity is up to 95% efficient.

On July 11, 2006, EPA promulgated 40 CFR Part 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE). As the generators were manufactured before April 1, 2006, the generators are not subject to NSPS 41.

RICE MACT 4Z: Emergency diesel generators may be subject to RICE MACT 4Z, Area Source NESHAP / MACT ZZZZ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines and National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines / Final rule (Page 3568, Federal Register / Vol. 73, No. 13 / Friday, January 18, 2008 / Rules and Regulations / Final rule). For questions regarding the Area MACT 4J, POH must deal directly with Region 5, US EPA, Chicago. If and only if the engine operates as an emergency engine under the rule (40 CFR 63.6675 & 63.6640; exceptions apply, e.g., interruptible service contract with a power utility) and is located at residential, institutional, or commercial establishments (including hospitals), the generators are exempt from RICE MACT.

AQD has decided not to take delegation of these standards and therefore no attempt has been made to evaluate the POH's compliance with NESHAP / MACT 4Z.

In summary, CI RICE MACT 4Z for existing units requires:

- 1. Change oil and filter every 500 hours of operation or annually, whichever comes first.
- 2. Inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and
- 3. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

I asked Mr. Ronan to comply with the above CI RICE MACT 4Z requirements.

Annual Air Quality Fees and MAERS

G. Vinson Hellwig, AQD Chief, sent the letter dated November 21, 2011 along with an Invoice No. 733832 dated November 17, 2011, for \$10,770.00 (2006-2011). In addition, Lynn Fiedler, Asst. AQD Chief, sent the letter dated April 23, 2012 along with an Invoice No. 754831 dated April 24, 2012, for \$1,795.00 (2012). Although POH is tardy in submitting MAERS, subsequently fee bills are paid.

Conclusion

EO sterilizers are idled and hydrogen peroxide plasma sterilizer is phased in. PTI No. 134-97 will be voided when idled EO sterilizers (2) are removed from the site. Based upon the FY 2018 inspection, POH is in compliance with the permits and NSPS.

CHIGHARAR DATE 01/2-4/2018 SUPERVISOR

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