

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

N320942114

FACILITY: ELM PLATING CO		SRN / ID: N3209
LOCATION: 1319 S ELM ST, JACKSON		DISTRICT: Jackson
CITY: JACKSON		COUNTY: JACKSON
CONTACT: Alan Kinsler , Environmental		ACTIVITY DATE: 10/19/2017
STAFF: Mike Kovalchick	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MINOR
SUBJECT: Compliant about odors/smoke coming from this facility.		
RESOLVED COMPLAINTS:		

Minor Source-Compliant Investigation/Inspection**Facility Contacts**

Allen Kinsler - Process/Environmental Manager

Bill Walters - President

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Website: <http://www.elmplating.com/>**Purpose**

On October 19, 2017, I conducted a complaint investigation of Elm Plating (Company) located at 1319 South Elm Street, Jackson, Michigan. The purpose of the inspection was to determine the facility's compliance status with the applicable federal and state air pollution regulations, particularly Michigan Act 451, Part 55, Air Pollution Control Act and administrative rules, conditions of Permit to Install (PTI) numbers 136-00 and 238-04, and to investigate a complaint about odors/smoke coming from the facility.

Facility Location

The facility is in the city of Jackson at 1319 South Elm St., in a commercial and industrial area. A public park is located about 1,000 feet west of the facility.

See attached aerial photo of facility.

Facility Background

The Company was last inspected on 10/23/2015 and was found to be in compliance.

The Company provides their customers with 2 main services at this location, which include zinc barrel plating (both zinc and chromate plating) and heat treating of all-metal fasteners and stampings. Currently, most of their production is for the auto industry.

On May 11, 2016, the Company submitted a Permit to Install exemption analysis for installation of a new zinc plating line that contains chrome conversion tanks.

On October 20, 2008, the Company submitted an Initial Notification to EPA for compliance for the National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations-40 CFR 63 Subpart WWWWWWW (6W). In this initial notification, the Company indicated that they have 11 chrome conversion tanks that have a control device to control potential chromium emissions.

Regulatory Applicability

The Company operates under PTI numbers 136-00 and 238-04, and permit exemption Rules 290(2)(a)(ii)(A), 285(2)(l)(iii) and 285(2)(r)(i). The Company is also subject to 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAP), Subpart WWWWWWW (6W), Plating and Polishing Operations, Area

Sources.

Arrival & Facility Contact

Visible emissions consisting of both black and white were observed upon my approach to the Company's facility coming from the roof that is above the heat treat area of the facility. Also noted was white smoke coming out of bay door on the North side of the heat treat building. No odors were noted. I arrived at 9 am, proceeded to the facility office to request access for an inspection, provided my identification and spoke with Allen Kinsler (AK) the environmental manager. I informed him of my intent to conduct a compliance investigation which includes an inspection and to review various records as necessary.

AK extended his full cooperation and fully addressed my questions.

Pre-Inspection Meeting

AK outlined that there are 105 employees and they are operating 24 hours/day, 7 days a week although not all lines are active all the time.

AK indicated that B2 line became inactive in early August and the new B5 line went into full production around December 27, 2017. (A decision hasn't been made whether the B2 will be permanently decommissioned.) He further indicated that 2 plating tanks were replaced in July for the B4 line since they were leaking.

AK indicated that the Company does not use Perfluorooctane Sulfonate (PFOS) or related fluorinated chemicals.

Emission Unit Details

PTI No. 136-00: Zinc Barrel Plating Line / AKA Barrel (B) Line 4 (B4).

The permit for this barrel line does not specify air pollution control equipment and requires a single required stack (Stack 1). The permit does not specify dimensions for the acid dip tank containing hydrochloric acid (HCLTANK6), a soak cleaner tank containing potassium hydroxide (KOHTTANK2) and an electro cleaner tank containing potassium hydroxide (KOH) (KOHTANK10). Permit special condition (SC) 1 requires the facility to maintain a 20 percent or less hydrochloric acid (HCl) concentration in HCLTANK6 and to keep records of the HCl purchased and concentration used in HCLTANK6. Permit SC 2 requires the facility to keep records of the amount used and concentration of potassium hydroxide (KOH) in KOHTANK2 and KOHTANK10.

PTI 238-04: Heat Treat Lines with Oil Quench.

The permit for the 3 heat treat lines does not specify air pollution control equipment or stack requirements. The heat treat lines are identified as emission units (EU) EUOQ1, EUOQ2 and EUOQ3 (also all 3 EU are organized as FG123) and all are described as a heat treat line equipped with a hardening furnace, oil quench, a draw furnace and auxiliary equipment. The group of heat treat lines has a particulate emission of 2,460 pounds per month (SC 1.1) determined monthly based upon a material balance recordkeeping identified in Appendix I of the permit. Per permit SC 1.2, the visible emissions from the group must not exceed a six-minute average of 10 percent opacity. Per SC 1.3, the process must not use more than 335.0 gallons of quench oil in the group per month. The facility must calculate the particulate emission rate from the group for each calendar month, using a material balance for quench oil usage (Appendix I). All weekly quench oil purchased or weekly usage rate (column A), amount of spent oil sent off-site for recycling (column B), amount of spent oil or sludge sent off-site for disposal (column C), documentation of the solids content in spent oil or sludge prior to recycling or disposal, amount of oil spilled (column D) and emission calculations (column E).

Permit Exemption Rule 290: Zinc Barrel Plating Lines / AKA B2 and B3.

Lines B2 and B3 consists of several tanks, including alkaline cleaner tanks (KOH), HCl acid tanks, and an electro cleaner tanks containing KOH. These specific tanks have a blower associated with each line that exhausts via a single stack. Past compliance for HCl emissions was demonstrated through Rule 290 and the KOH tanks are exempt by Rule 285(2)(l)(iii). Then the plater tanks follow and vent into the in-plant environment and are exempt per Rule 285(2)(r)(vii). Approximately 10% of parts that are zinc plated on line B3 receive a chromate coating, per customer finishing needs. The requirements to comply with Rule 290 include: (1) A description of the emission unit is maintained throughout the life of the unit; (2) Records of material use and calculations identifying the quality, nature, and quantity of the air contaminant emissions are maintained in sufficient detail to demonstrate that the emissions meet the emission limits outlined in this rule; and (3) The

records are maintained on file for the most recent 2-year period and are made available to the air quality division upon request.

Permit Exemption Rule 285(2)(r)(i): Chromate Conversion Lines

The Company also has two chromate (C) lines, C1 and C3. Sixteen tanks are associated with line C1 and 8 tanks with line C3. The Company offers 3 chromate finishes, including hexavalent yellow, hexavalent olive drab, and black chromatic bath and sealer. The lines do not exhaust directly to the exterior. (Note: Hexavalent refers to a type of color; not a plating process in this instance.)

Permit Exemption Rule 290: New Chrome Conversion Coating Line B5

This line consists of 42 separate tanks, which includes alkaline cleaner tanks, acid tanks, an activation tank, plating tanks and multiple water rinse tanks. It also includes a 4.2 MMBtu/hr natural gas fired boiler and 5 small drying/curing ovens.

The water rinse tanks are exhausted to the in-plant environment. The cleaning, acid and zinc plating tanks are exhaust via stacks. The 5 chrome conversion tanks are exhausted to a Viron International Viro-Chrome 9000 chrome scrubber that has a 99.8% removal efficiency.

The requirements to comply with Rule 290 include: (1) A description of the emission unit is maintained throughout the life of the unit; (2) Records of material use and calculations identifying the quality, nature, and quantity of the air contaminant emissions are maintained in sufficient detail to demonstrate that the emissions meet the emission limits outlined in this rule; and (3) The records are maintained on file for the most recent 2-year period and are made available to the air quality division upon request.

Onsite Inspection

AK escorted me as I conducted the onsite tour portion of the inspection. We first observed the B3 Line, the new B5 line, the B4 Line, C1 and C3, and the inactive B2 line. (B2 line tanks still had liquid in the tanks.). The heat treat building was also inspected including the roof. B3, B4, C1 and C3 were as described during the previous inspection in 2015. None of the chrome conversion tanks had controls on them or lids or was a fume suppressant being used.

The new B5 line was in good condition and well ventilated. Tanks producing emissions were collected via side collection hoods adjacent to each tank. On the opposite side of the tank from the hood was a blower/"pusher" to direct tank emissions to the hoods. See photos.

Emissions were ducted to 4 exhaust stacks that were outside on the North side of the building. See photo of exhaust vents exiting the building and exhaust stacks outside the building. The stacks were on the edge of the complainants' parking lot. Odors were not noted in the parking lot as winds/weather conditions were not favorable.

The emissions from the tanks that contain chromium compounds were being directed to a 3 stage wet scrubber. Magnehelic pressure drop meters were located on the side of the scrubber accessed by a ladder. See photos of each of the 3 meters. The 2nd stage meter was off the scale in excess of 8" and the 3rd stage was reading 0". This is highly suggestive that the 2nd stage was plugged. Per the scrubber operating manual, the 2nd stated mesh pad should be cleaned if the reading exceeds 4.5". There was 3 water flow rate gauges; one for each stage. None of the 3 water gauges appeared to be working properly as they all appeared to be registering a zero flow rate. (See photo.) I was unable to tell if water was flowing into the scrubber or not. Per the scrubber operating manual, the proper flow rate is 8 to 16 gpm.

We then observed the 3 heat treat lines with oil quenching. We observed each line's hardening furnace, oil quench, and the second, reheat furnace. The general indoor area around the 3 heat treat lines was smoky and steamy. SC 1.2 of PTI No. 238-04, requires that visible emissions from FG121 not exceed a six minute average of 10% opacity. See attached photos.

A roof inspection was conducted on the heat treat building. The roof was difficult to access requiring the use of a tall portable ladder on the outside of the building on the North side.

The area above the heat treat process contained numerous stacks. See attached photos. Many of the stacks were blackened at the stack exit points. Oily soot was present on the roof. A stack labeled #7 coming from the

F2 hardening furnace was producing black smoke that I conservatively estimated at 25% opacity. The maintenance person that accompanied me stated he believed that one of the burners needed to be adjusted. Stack # 3 from the F1 hardening furnace I estimated opacity at 10%. The Post Wash stack from F2 I estimated the opacity to be at 35%. Based on the rather large size of the stack and the amount of smoke coming from it, I concluded that this stack was the one referred to by the complainant. Emissions from the stack appear to contain a combination of steam and smoke. Where the steam trails off, the smoke appears to condense. After the roof inspection, I was taken to where each stack that had opacity was coming from. See attached photo of burner generating black smoke.

In addition to the stack opacity, the oil quenching was generating smoke that was being uncollected by ventilation systems and simply filling the entire heat treat building especially near the ceiling. To counter act this and to lower temperature in the building, the Company had bay doors open in all four corners of the building to create a cross flow ventilation with visible smoke seen exiting the building through an open bay door on the North side. A similar observation was made by the previous inspector back in 2015.

Post-Inspection Meeting

A post inspection meeting was held with AK and other Company personnel including Bill Walters who is the President of the Company. I outlined that I had some compliance concerns that included several 6W MACT requirements, 2 opacity exceedances from the heat treat furnaces, improper building ventilation in the heat treat building, and problems with the B5 line wet scrubber. I noted that any potential odor issues coming from the new B5 line will need to be investigated further to be able to draw any conclusions.

I thanked AK and other Company personnel for their time and cooperation, and departed the facility at approximately 12:00 PM.

Recordkeeping Review

I requested the following records:

- 1) Provide necessary records for Rule 290 compliance for September for the B3 line
- 2) Provide necessary records for Rule 290 compliance for the B2 line for the last full month it was operating.
- 3) Provide the SDS sheets for the 2 types of quench oil that was used.
- 4) Provide necessary records to show compliance with PTI 136-00 and 238-04.
- 5) Provide necessary records for Rule 290 compliance for the B5 line.
- 6) Provide the operating manual for the wet scrubber for the B5 line.
- 7) Provide any information you have on MACT 6W compliance. (AK indicated he really didn't have anything to provide.)

Attachment (1) is the B5 Scrubber Manual.

Attachment (2) is the B5 emissions records to show compliance with Rule 290.

Attachment (3) is the Monthly Oil Usage records for the heat treat furnaces for 2016/2017.

Attachment (4) is SDS for the double quench oil

Attachment (5) is the SDS for the Solucut 77 oil.

Attachment (6) is the required recordkeeping for B2 for the month of May.

Attachment (7) is the required recordkeeping for B3 for the month of September.

Attachment (8) is the required recordkeeping for B4 to comply with PTI 136-00.

Attachment (9) is Preventative Maintenance information for the Heat Treat lines

PTI No. 136-00 / B4 Records Review:

Records for the requested time period indicate compliance with permit SC 1, which requires the facility to maintain a 20 percent or less hydrochloric acid (HCl) concentration in HCLTANK6 and to keep records of the HCl purchased and concentration used in HCLTANK6 (the HCl concentration was generally between 9 and 11% during the time period reviewed).

PTI No. 238-04 Records Review:

The records provided by the Company appear to demonstrate compliance with permit SC 1.1, which limits particulate emissions from the 3 heat treat lines to 2,460 pounds / month and with S.C. 1.3, which limits quench oil usage to 335 gallons per month. (Maximum month was only 266 gallons.)

Permit Exemption Rule 290: Zinc Barrel Plating Lines B2 and B3 Records Review:

The records provided by the Company for the requested timeframe appear to demonstrate compliance with Rule 290 requirements, which include emitting less than the monthly emission limit, providing a description of the emission units, and providing records for the requested timeframe. The Company has demonstrated compliance with Rule 290(a)(ii)(A), which limits HCl (not identified as a carcinogen) emissions to 1,000 pounds per month (uncontrolled). The Company provided records for both B2 and B3 that indicate that monthly emissions are less than 100 pound of HCl per month for each barrel line.

Permit Exemption Rule 290: New Zinc Plating Line B5 Records Review:

The records provided by the Company for the requested timeframe appear to demonstrate compliance with Rule 290 requirements, which include emitting less than the 1000 pounds, 500 pounds (if controlled), 20 or 10 pounds (if controlled) if low it has low toxic screening levels for monthly emissions, providing a description of the emission units, and providing records for the requested timeframe.

Compliance Summary

The Company is out of compliance with the following requirements:

- 1) Exceeding the 10% opacity limitation for 2 stacks associated with the heat treat operation.
- 2) Numerous MACT 6W requirements for the all chrome conversion tanks at the facility.
- 3) Improper operation of a control device per Rule 910 for the new chrome conversion line wet scrubber.
- 4) Rule 201 Violation-No Permit to Install for 3 oil quenching tanks located underneath 3 separate hardening furnaces that are generating particulate emissions that are not being properly captured by a ventilation system associated with either the hardening furnaces or the post wash ventilation systems. Instead, smoke from these oil quench tanks is being emitted from openings in the floor into the in-plant environment and then escaping through open bay doors located at ground level.

A Violation Notice (VN) will be sent to the Company outlining these violations.



Image 1(Aerial Photo) : Aerial Photo of Elm Plating.

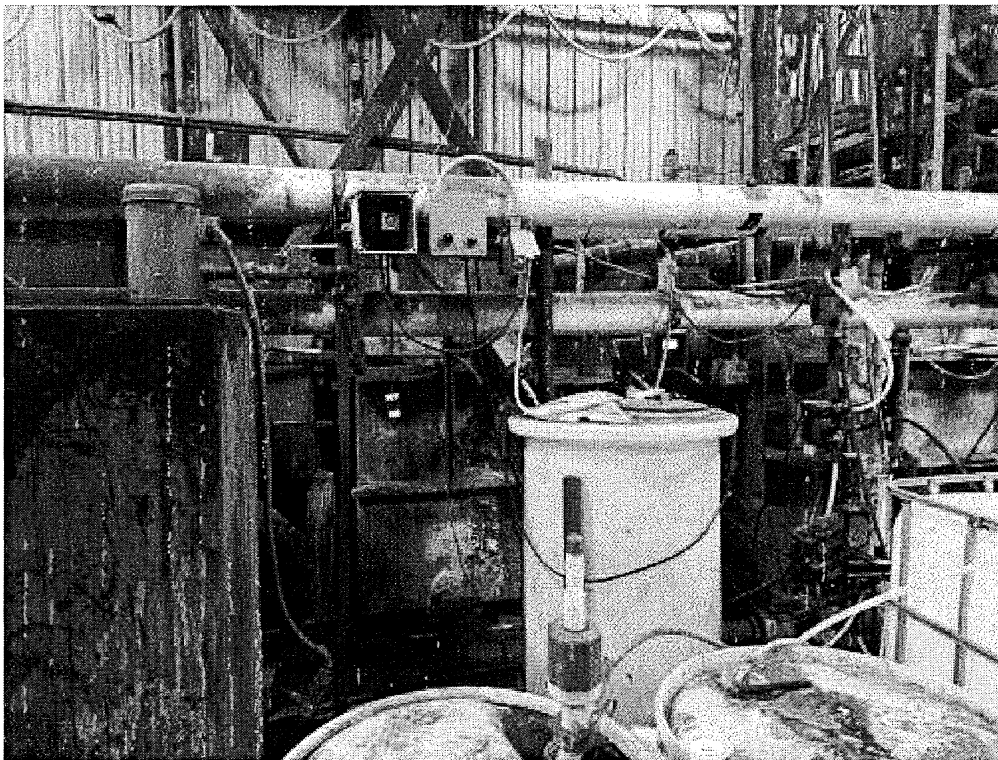


Image 2(B3 Line) : B3 Line with rusty chrome conversion tank.

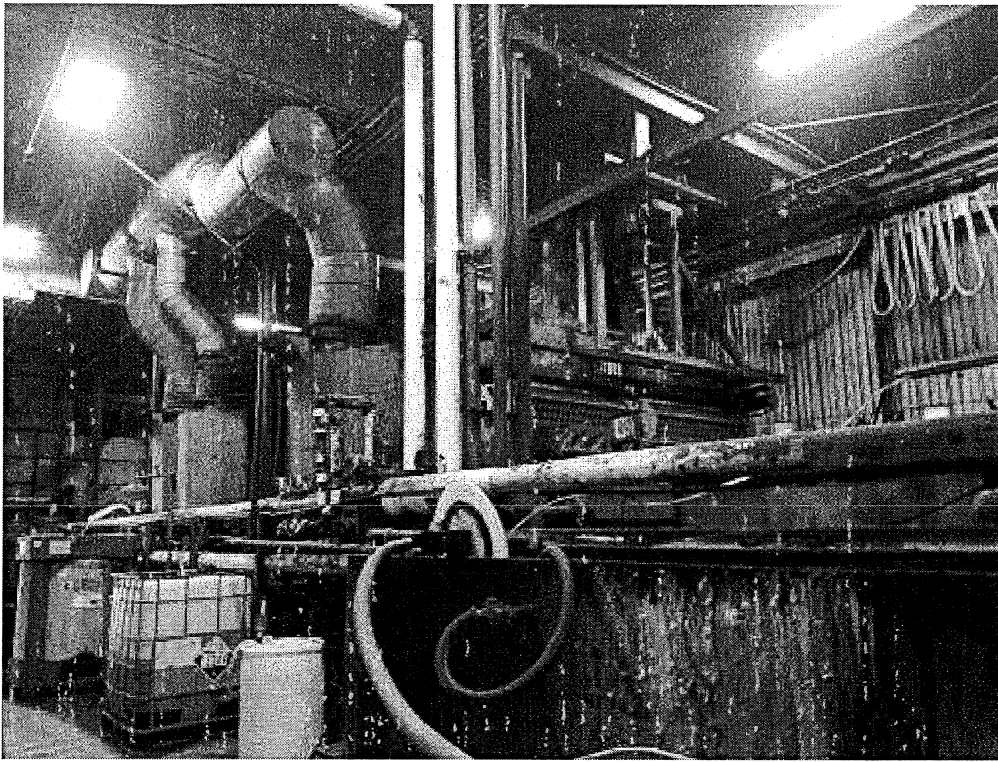


Image 3(B3 Line) : B3 Line

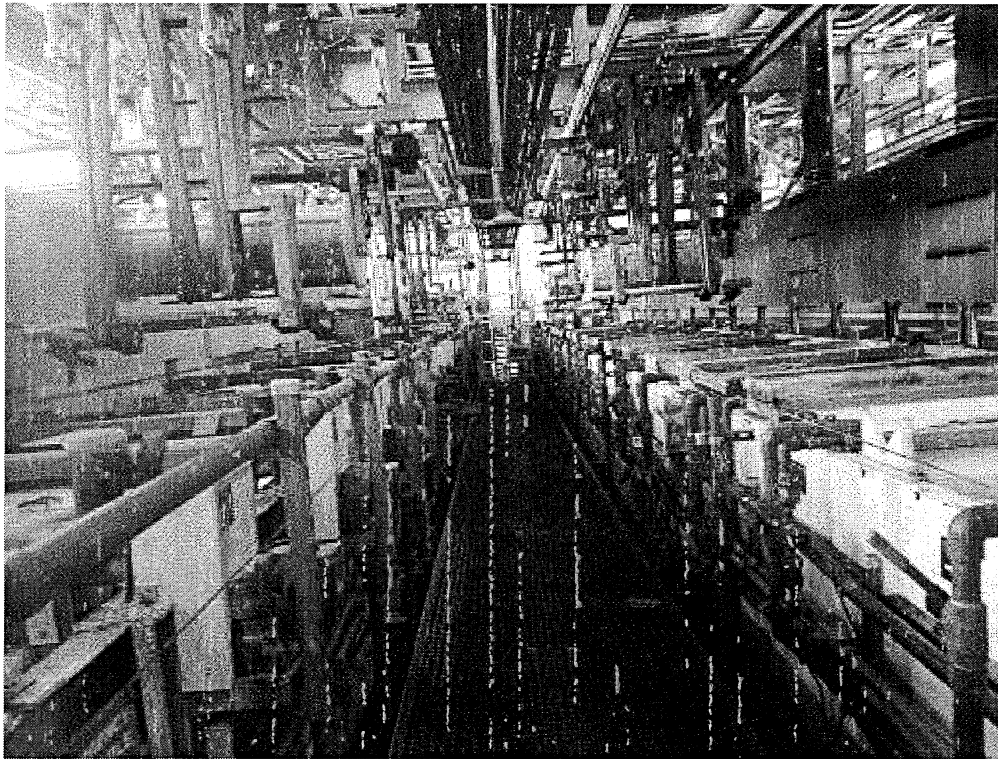


Image 4(B5 Line) : B5 Line

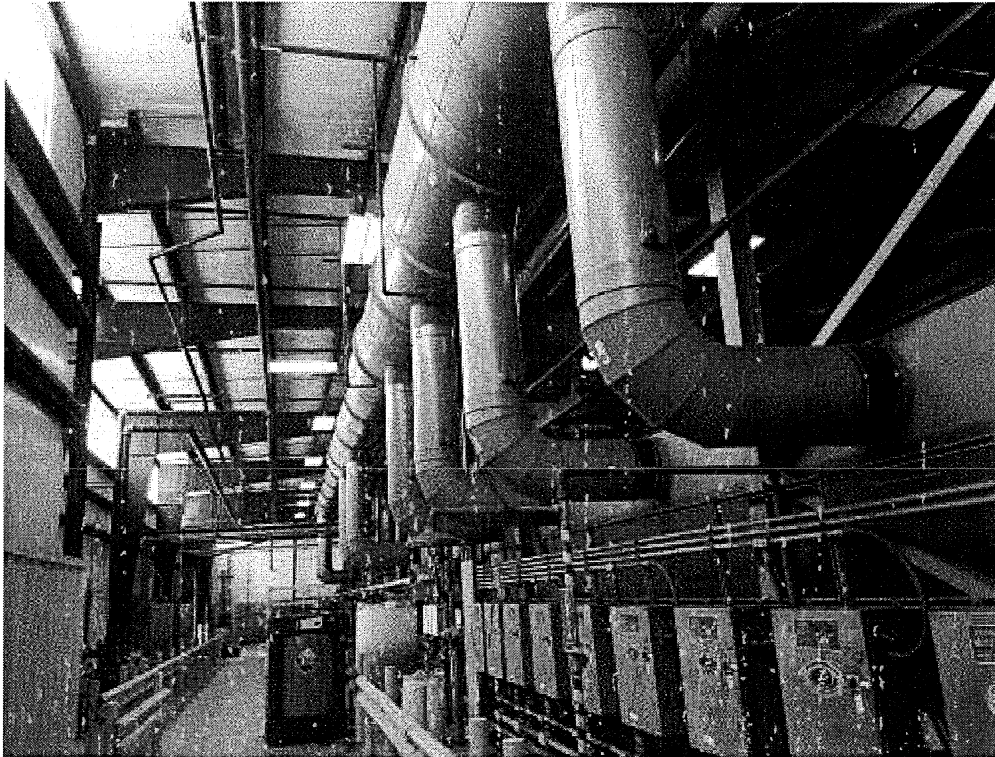


Image 5(B5 Line) : Ventilation in back of B5 line

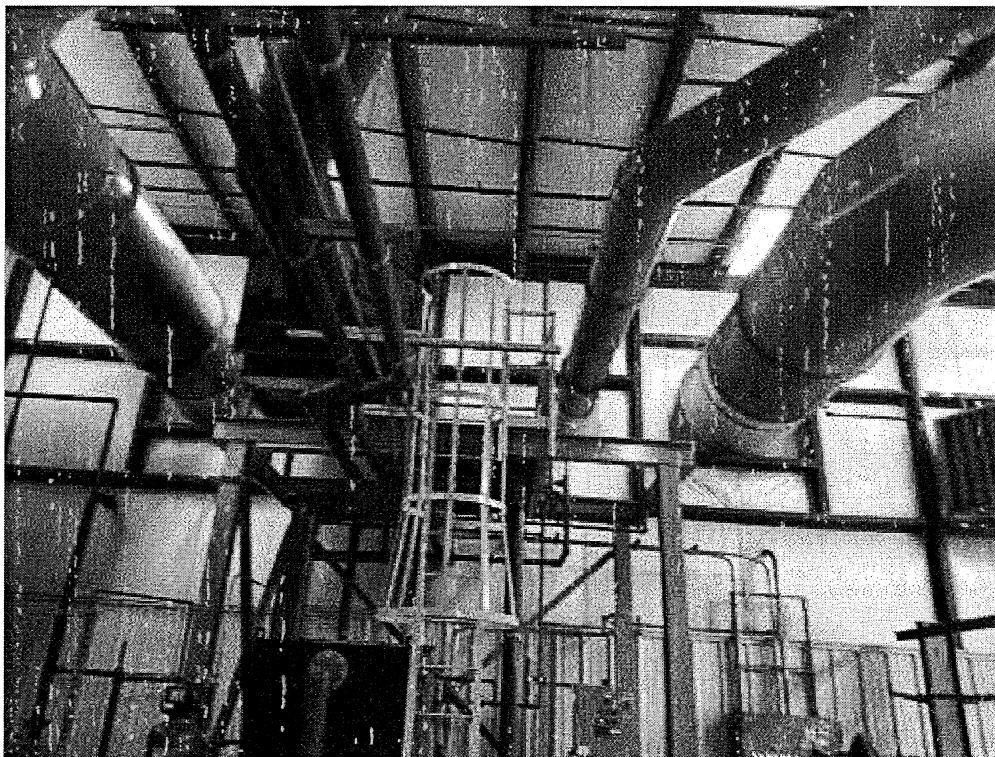


Image 6(B5 Line Exhausts) : B5 Line ventilation ducts exiting building and yellow ladder to wet scrubber.



Image 7(B5 line stacks) : B5 line stacks.



Image 8(B5 Stage 1 Scrubber) : B5 Stage 1 Pressure drop across the first mesh pad.

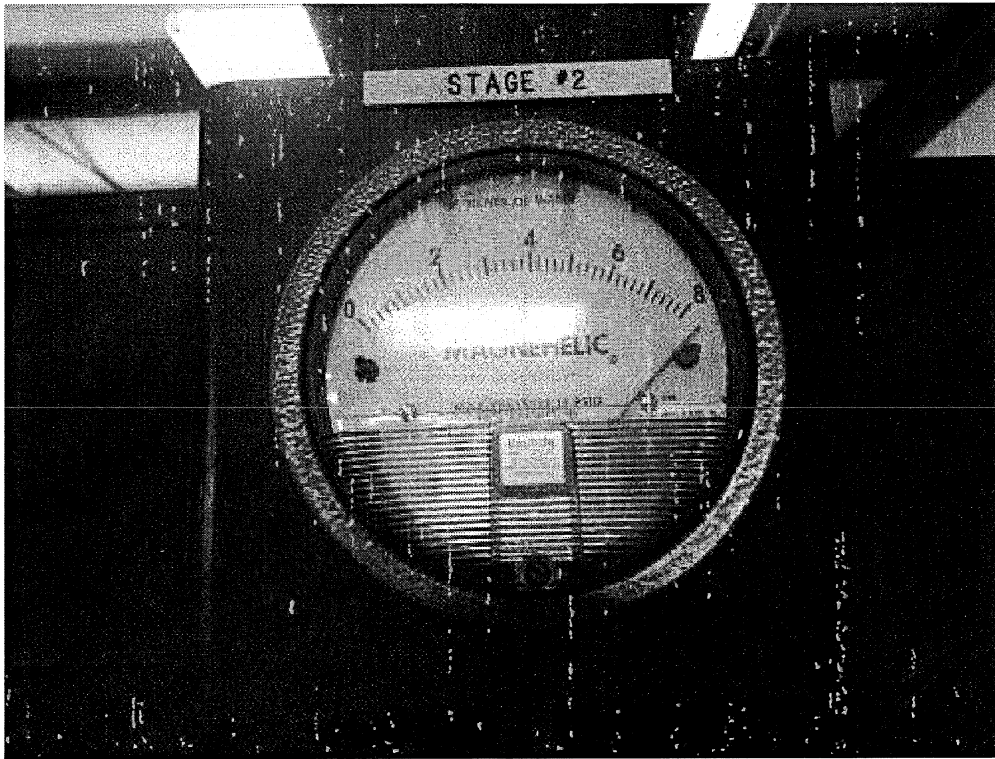


Image 9(B5 Stage 2 Scrubber) : B5 Stage 2 Pressure drop across the second mesh pad.

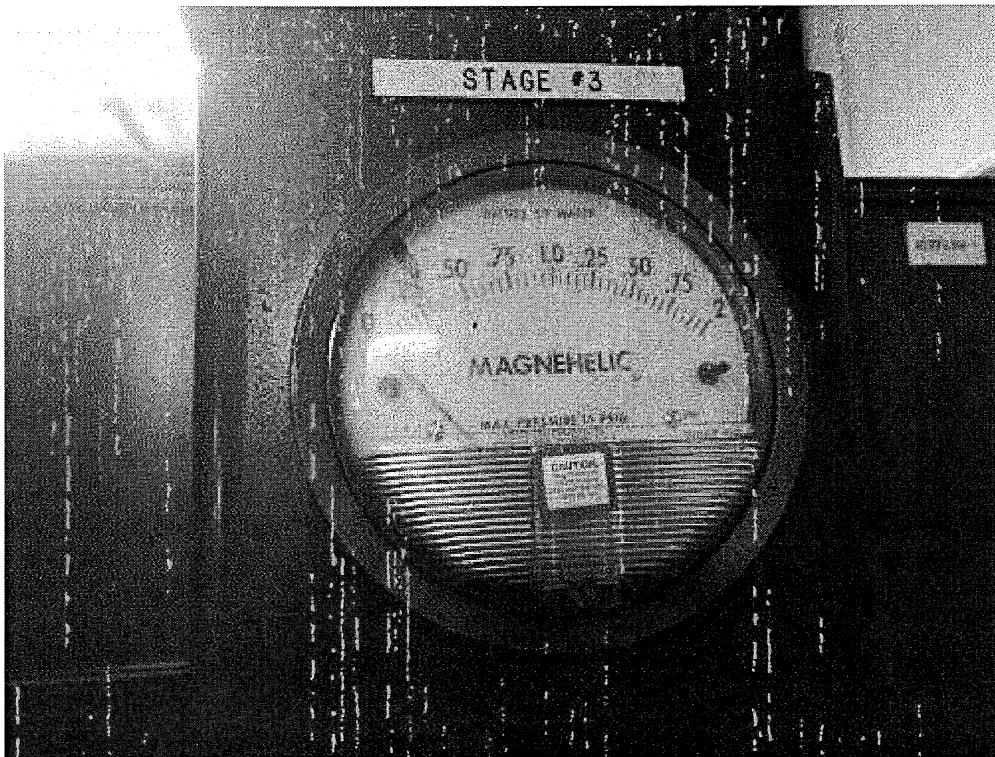


Image 10(B5 Stage 3 Scrubber) : B5 Stage 3 Pressure drop across the third mesh pad.

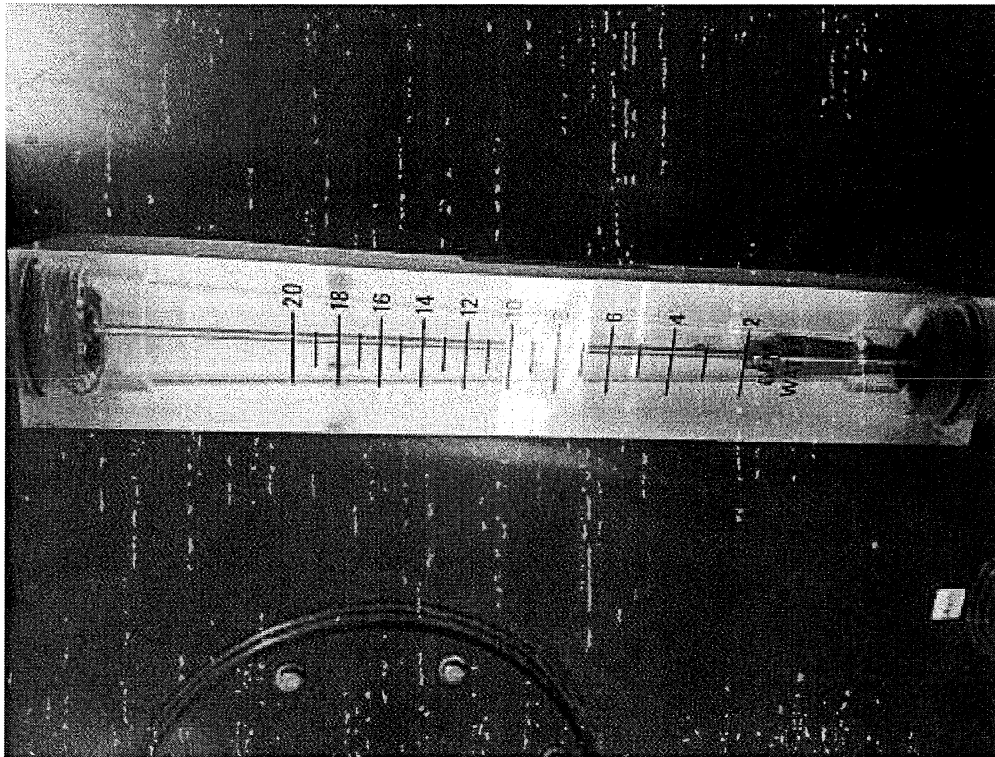


Image 11(Scrubber flow meter) : Scrubber flow meter apparently showing no water flow.

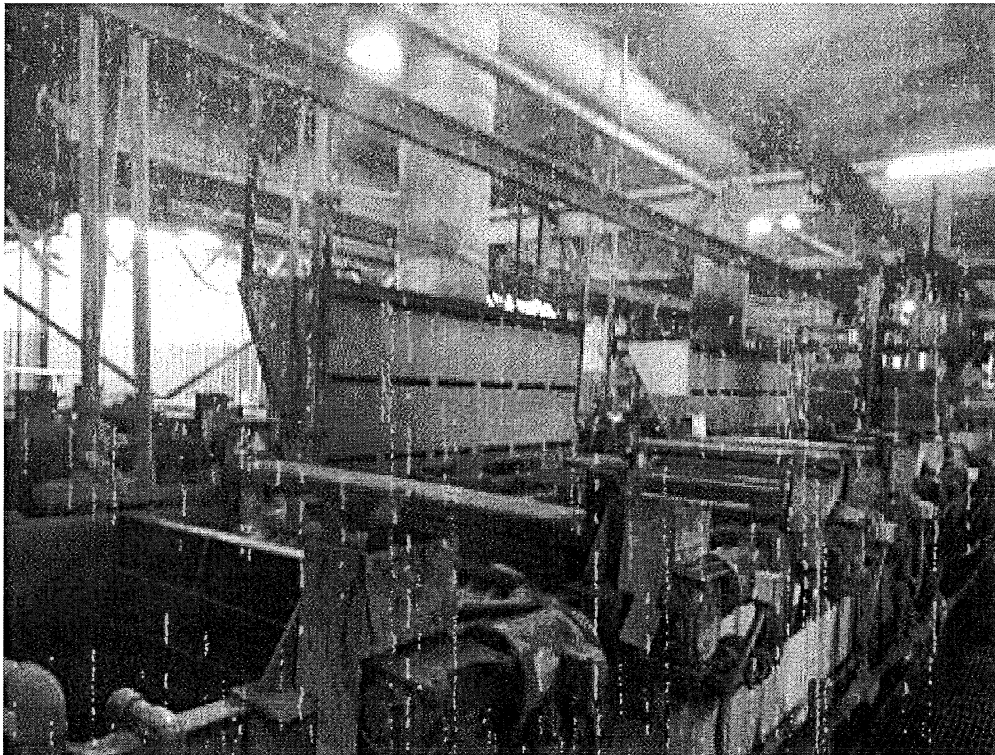


Image 12(B4 Line) : B4 line.



Image 13(Chemical storage) : Chemical storage room.

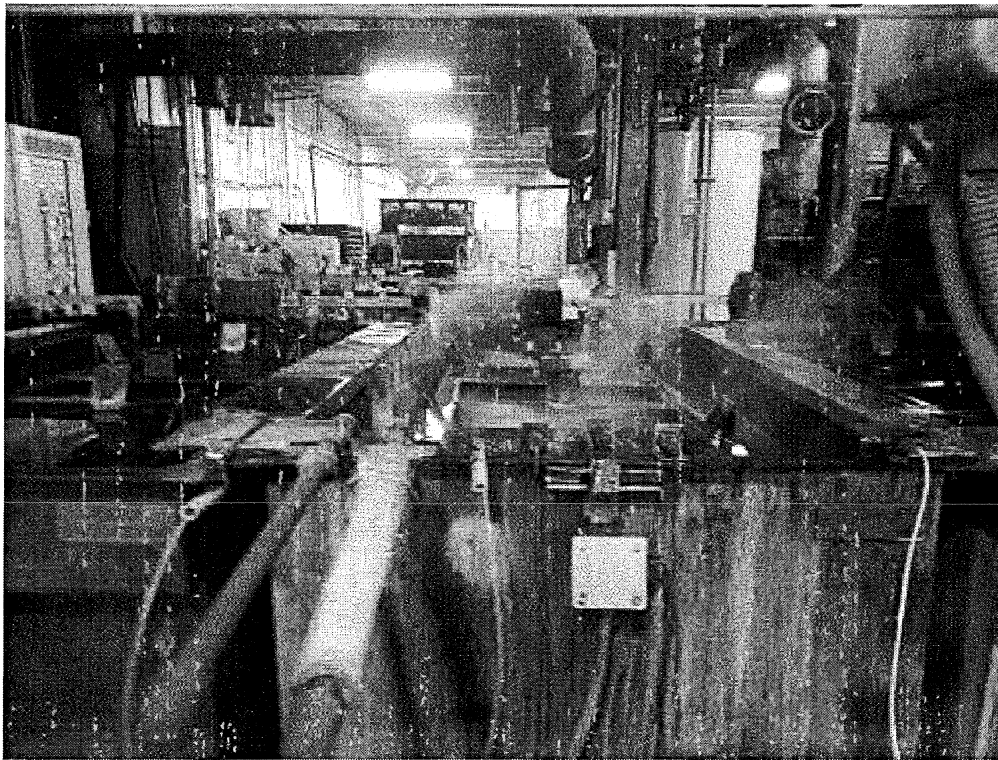


Image 14(Chrome conversion) : Chrome conversion tank

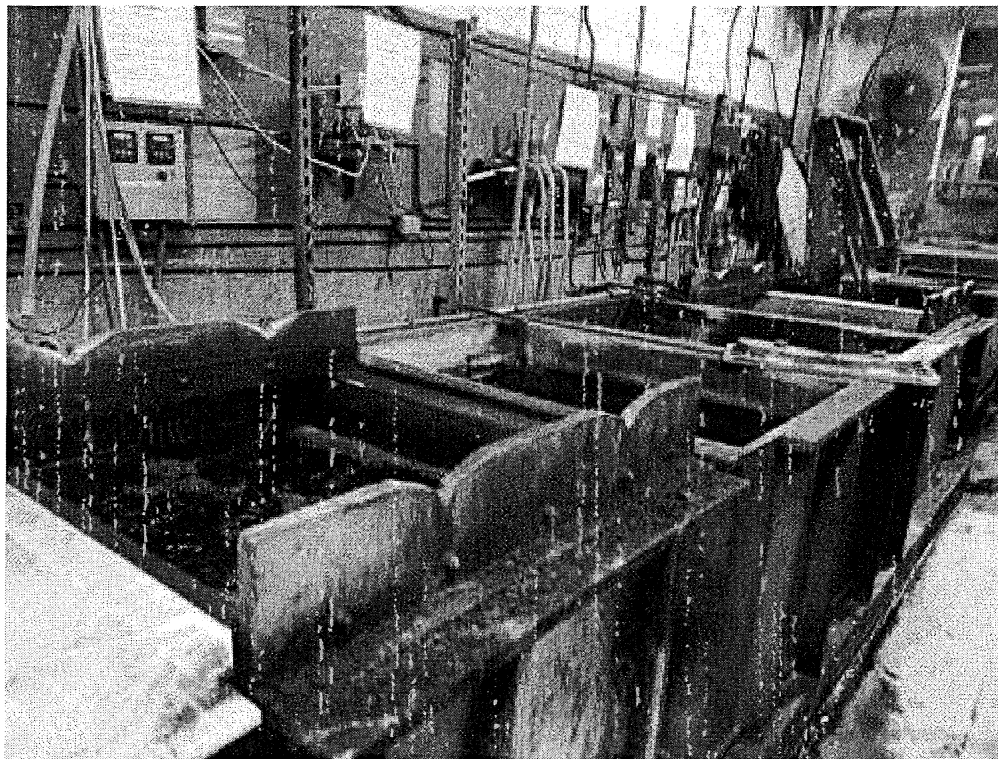


Image 15(Chrome conversion) : Chrome conversion tanks



Image 16(Heat Treat Bldg) : Heat Treat Building

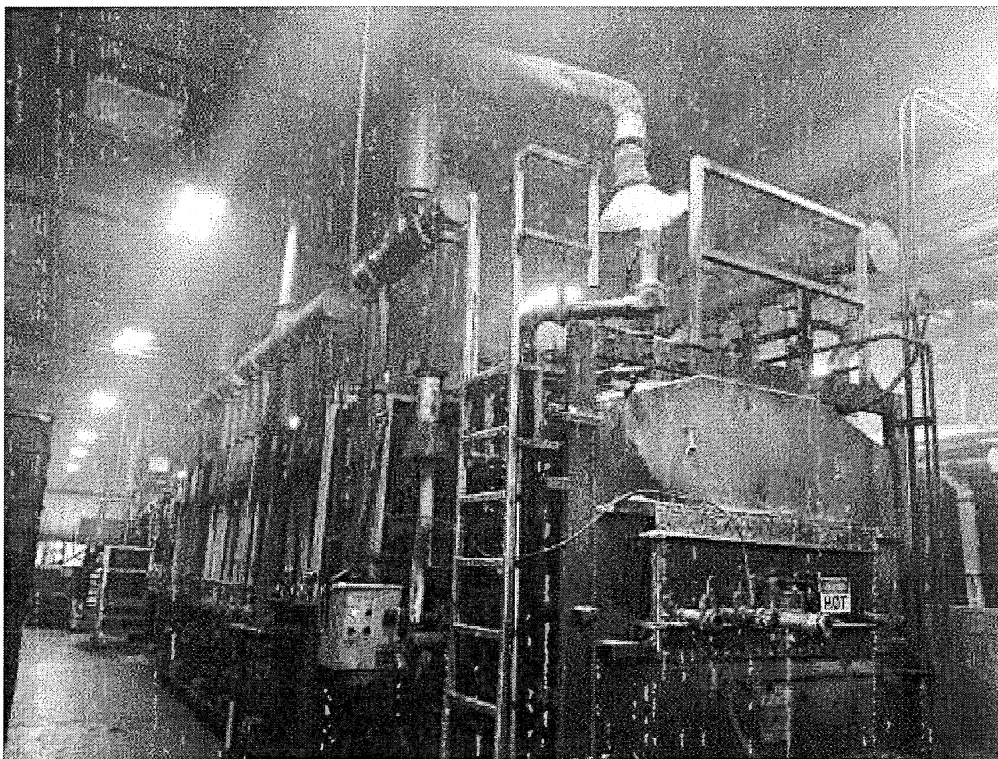


Image 17(Heat Treat) : Heat Treat building and hardening furnace

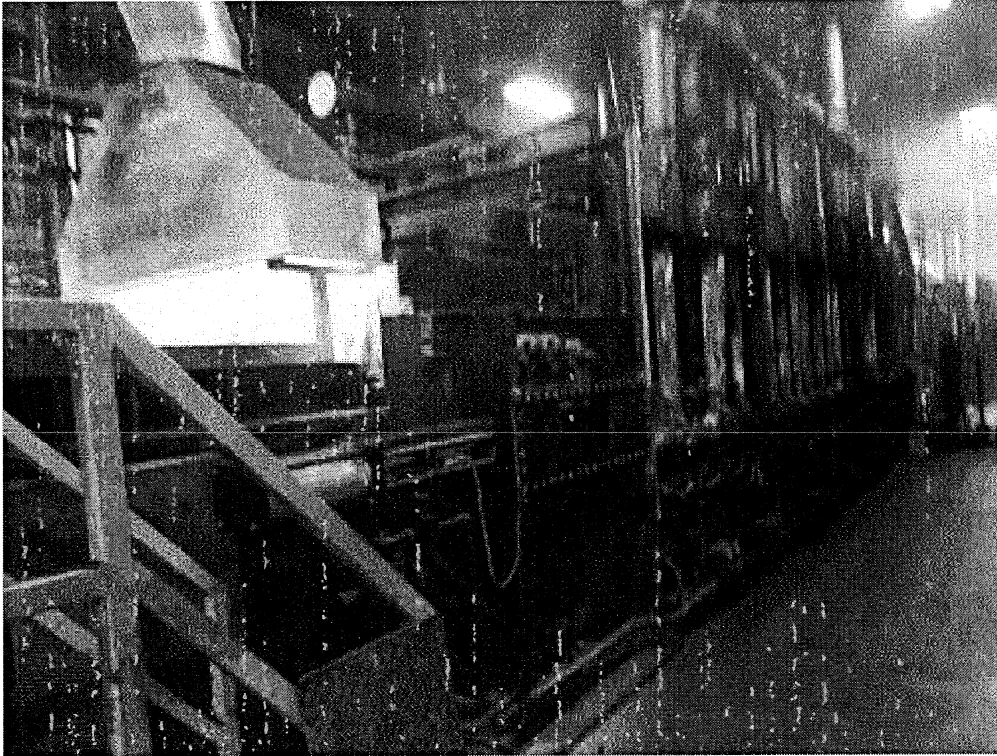


Image 18(Heat Treat) : Heat Treat



Image 19(Heat Treat) : Heat Treat-one of the open doors next to fan.



Image 20(Heat Treat Stacks) : Heat Treat Stacks with black soot on roof.

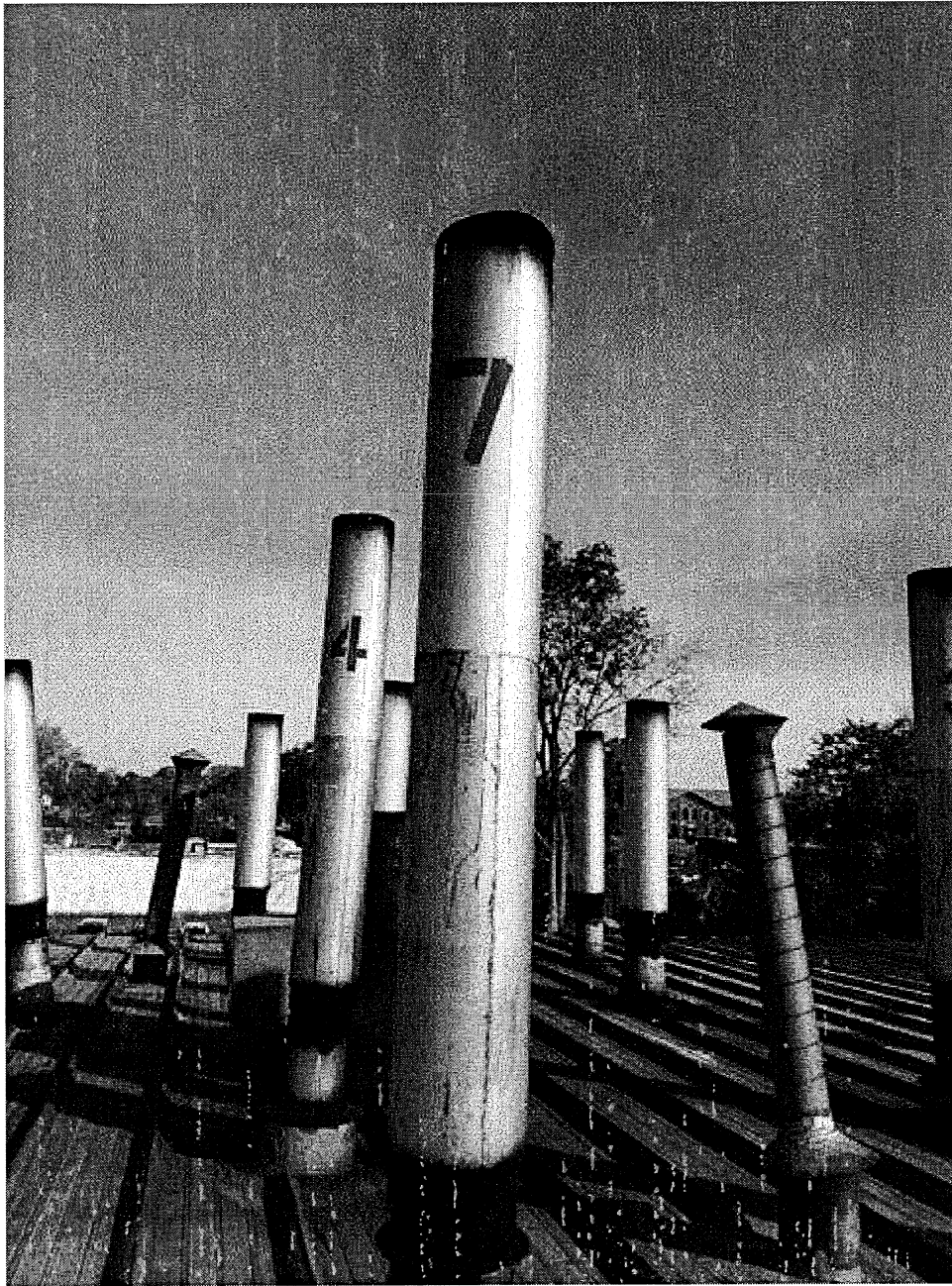


Image 21(Stack 7) : Stack 7 with black smoke

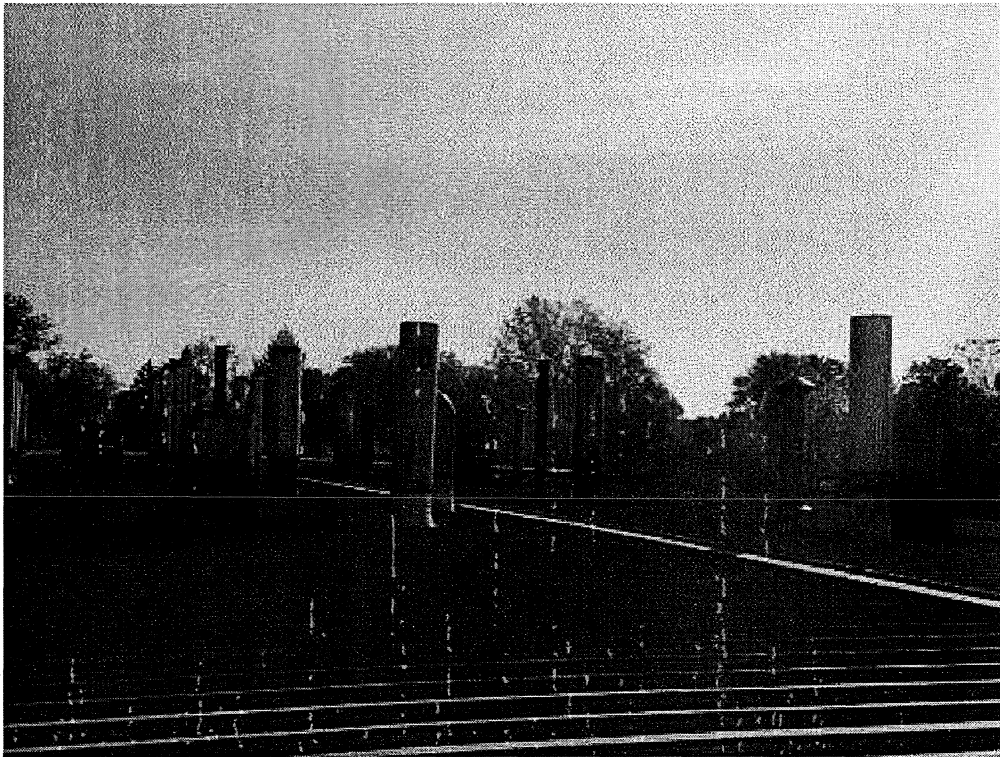


Image 22(Post Wash Stack) : Post Wash Stack generating white smoke

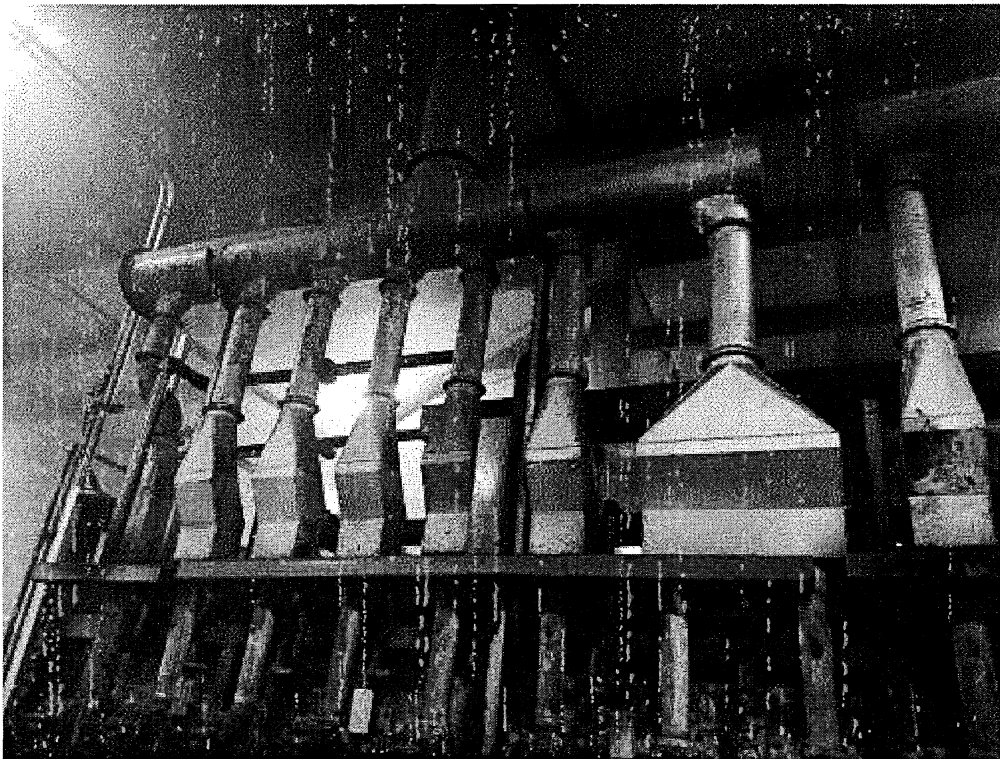


Image 23(Hardening Furnace) : Hardening furnace burner exhausts one of which was generating black smoke.

NAME M. Kovalchuk

DATE 10/30/2017

SUPERVISOR 