



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7

08 FEB 28 PM 3:01

901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101
ENVIRONMENTAL PROTECTION AGENCY-REGION VII
REGIONAL HEARING CLERK

EXPEDITED SETTLEMENT AGREEMENT (ESA)

DOCKET NO.: CAA-07-2008-0007

This ESA is issued to: City of Manhattan Water Treatment Plant

At: 330 Bertrand, Manhattan, Kansas 66502

for violating Section 112(r)(7) of the Clean Air Act.

The United States Environmental Protection Agency, Region 7 (EPA) and the City of Manhattan Water Treatment Plant, 330 Bertrand, Manhattan, Kansas 66502 (Respondent), have agreed to a settlement of this action before filing of a complaint, and thus this action is simultaneously commenced and concluded pursuant to Rules 22.13(b) and 22.18(B)(2) of the Consolidated Rules of Practice Governing the Administrative Assessment of Civil Penalties, Issuance of Compliance or Corrective Action Orders, and the Revocation, Termination or Suspension of Permits (Consolidated Rules), 40 C.F.R. §§ 22.13(b), 22.18(b)(2).

The Complainant, by delegation of the Administrator of EPA, is the Director of the Air, and Waste Management Division. The Respondent is the City of Manhattan Water Treatment Plant, 330 Bertrand, Manhattan, Kansas 66502.

This is an administrative action for the assessment of civil penalties instituted pursuant to Section 113(d) of the Clean Air Act. Pursuant to Section 113(d) of the Clean Air Act, 42 U.S.C. § 7413(d), the Administrator and the Attorney General jointly determined that this matter, where the total penalty exceeds \$270,000 or where the first alleged date of violation occurred more than 12 months prior to the initiation of the administrative action, was appropriate for administrative penalty action.

ALLEGED VIOLATIONS

On July 25, 2006, an authorized representative of the EPA conducted a compliance inspection of the Respondent's facility located at 330 Bertrand, Manhattan, Kansas 66502, to determine compliance with the Risk Management Plan (RMP) regulations promulgated at 40 C.F.R. Part 68 under Section 112(r) of the Clean Air Act. The EPA found that the Respondent had violated regulations implementing Section 112(r) of the Clean Air Act by failing to comply with the regulations as noted on the enclosed Risk Management Program Inspection Findings, Alleged Violations and Proposed Penalty Sheet (RMP Findings), which is hereby incorporated by reference.

SETTLEMENT

In consideration of Respondent's size of business, its full compliance history, its good faith effort to comply, and other factors as justice may require, and upon consideration of the

entire record, the parties enter into the ESA in order to settle the violations, described in the enclosed RMP Findings, for the total penalty amount of **\$1175.00**.

This settlement is subject to the following terms and conditions:

The Respondent by signing below waives any objections that it may have regarding jurisdiction, neither admits nor denies the specific factual allegations contained in herein and in the RMP Findings, and consents to the assessment of the penalty as stated above. Respondent waives its rights to a hearing afforded by Section 113(d)(2)(A) of the Clean Air Act, 42 U.S.C. § 7413(d)(2)(A), and to appeal this ESA. Each party to this action shall bear its own costs and fees, if any. Respondent also certifies, subject to civil and criminal penalties for making a false submission to the United States Government, that the Respondent has corrected the violations listed in the enclosed RMP Findings and has sent a cashier's check or certified check (payable to the "Treasurer, United States of America") in the amount of **\$1175.00** in payment of the full penalty amount to the following address:

U.S. Environmental Protection Agency
Fines and Penalties
Cincinnati Finance Center
P.O. Box 979077
St. Louis, Missouri 63197-9000

The Docket Number of this ESA is CAA-07-2008-0007, and must be included on the check.

This original ESA, a copy of the completed RMP Findings, and a copy of the check must be sent by certified mail to:

Deanna Smith
Office of Regional Counsel
U.S. Environmental Protection Agency, Region 7
901 North 5th Street
Kansas City, Kansas 66101.

A copy of the check must also be sent to:

Kathy M. Robinson
Regional Hearing Clerk
U.S. Environmental Protection Agency, Region 7
901 North 5th Street
Kansas City, Kansas 66101.

Upon Respondent's submission of the signed original ESA, EPA will take no further civil action against Respondent for the alleged violations of the Clean Air Act referenced in the RMP

Findings. The EPA does not waive any other enforcement action for any other violations of the Clean Air Act or any other statute.

If the signed original ESA with an attached copy of the check is not returned to the EPA Region 7 office at the above address in correct form by the Respondent within 45 days of the date of Respondent's receipt of it (90 days if an extension is granted), the proposed ESA is withdrawn, without prejudice to EPA's ability to file an enforcement action for the violations identified herein and in the RMP Findings.

This ESA is binding on the parties signing below.

This ESA is effective upon filing with the Regional Hearing Clerk.

FOR RESPONDENT:

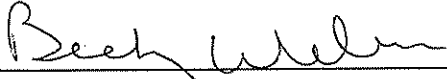
Bennett L Seematter

Date: 2-20-08

Name (print): Bennett L Seematter

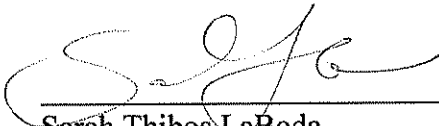
Title (print): Plant Supervisor
City of Manhattan Water Treatment Plant

FOR COMPLAINANT:



Becky Weber
Director
Air and Waste Management Division
EPA Region 7

Date: 2/26/08



Sarah Thibos LaBoda
Assistant Regional Counsel
EPA Region 7

Date: 2/22/08

I hereby ratify the ESA and incorporate it herein by reference. It is so ORDERED.

Karina Borromeo
Karina Borromeo
Regional Judicial Officer

Date: 2/28/08

Expedited Settlement Agreement
Risk Management Program Inspection Findings

Manhattan Water Treatment Plant
Manhattan, Kansas

PLEASE COMPLETE AND COPY THIS FORM AND RETURN WITH THE ESA

VIOLATIONS

PENALTY AMOUNT

Section A – Management [68.15]

\$300.00

1. The owner and operator failed to develop a management system to oversee the implementation of the risk management program elements. [68.15(a)]

How was this addressed: PLEASE SEE ATTACHED

Section C: Prevention Program [68.48 – 68.60]

Prevention Program - Safety information [68.48(a)]

No Penalty

2. The owner or operator failed to compile and maintain the following up-to-date safety information, related to the regulated substances, processes, and equipment: [68.48(a)]

- Material Safety Data Sheets (MSDS) that meet the requirements of the OSHA Hazard Communication Standard. [29 CFR 1910.1200(g)] [68.48(a)(1)]

How was this addressed: PLEASE SEE ATTACHED

Prevention Program - Safety information [68.48(b)]

\$750.00

3. 68.48(b) - Owner or operator failed to ensure that their facilities' process is designed in compliance with recognized and generally accepted good engineering practices.

How was this addressed: PLEASE SEE ATTACHED

Prevention Program- Operating procedures [68.52]

No Penalty

4. The owner or operator failed to prepare written operating procedures that provide clear instructions or steps for safely conducting activities associated with each covered process consistent with the safety information for that process. (Operating procedures or instructions provided by equipment manufacturers or developed by persons or organizations knowledgeable about the process and equipment may be used as a basis for a stationary source's operating procedures.) [68.52(a)]

a. Do the procedures shall address the following: [68.52(b)]

- i. Initial startup? [68.52(b)(1)]
- ii. Normal operations? [68.52(b)(2)]
- iii. Temporary operations? [68.52(b)(3)]
- iv. Emergency shutdown and operations? [68.52(b)(4)]
- v. Normal shutdown? [68.52(b)(5)]
- vi. Startup following a normal or emergency shutdown or a major change that requires a hazard review? [68.52(b)(6)]
- vii. Consequences of deviations and steps required to correct or avoid deviations? [68.52(b)(7)]
- viii. Equipment inspections? [68.52(b)(8)]

How was this addressed: PLEASE SEE ATTACHED

Prevention Program - Maintenance [68.56]

No Penalty

5. The owner or operator failed to prepare or implement procedures to maintain the on-going mechanical integrity of the process equipment. [68.56(a)]

How was this addressed: PLEASE SEE ATTACHED

Prevention Program - Compliance audits [68.58]

\$300.00

6. The owner or operator has failed to perform or certify that compliance audits are conducted at least every three years to verify that the procedures and practices are adequate and are being followed. [68.58(a)]

How was this addressed: PLEASE SEE ATTACHED

Section E – Risk Management Plan [68.170 – 68.200]

\$1,000.00

7. The owner or operator failed to update in accordance with emergency contact information required at 68.160(b)(6) has changed since June 21, 2004, the owner or operator failed to submit corrected information within thirty days of the change. [68.195(b)]

How was this addressed: PLEASE SEE ATTACHED

SUBTOTAL

\$2,350.00

Calculation of Adjusted Penalty

1st Reference the Multipliers for calculating proposed penalties for violations found during RMP inspection matrix. Finding the column for population size 25,001 – 50,000 amount gives a multiplier factor of 0.5 Therefore, the multiplier for Manhattan Water Treatment Facility = 0.5.

2nd Adjusted Penalty = \$2,350 (Unadjusted Penalty) X 0.5 (Size-Threshold Multiplier)
Adjusted Penalty = \$1,175

3rd An Adjusted Penalty of \$1,175 would be assessed to Manhattan Water Treatment Facility for Violations found during the RMP Compliance Inspection. This amount will be found in the Expedited Settlement Agreement (ESA)

TOTAL

\$1,175.00

The approximate cost to correct the above items and to convert disinfection process to sodium hypochlorite: \$ 400,000

Compliance staff name: Gerald McIntyre

Signed: Gerald McIntyre Date: 2/24/08

Expedited Settlement Agreement
Risk Management Program Inspection Findings

The City is dedicated to ensuring optimal safety at its facilities, including the water treatment plant. Consequently, on June 7, 2007, City staff met with Robert Bryant, Environmental Scientist, Chemical Risk Information Branch, of the US Environmental Protection Agency to discuss the findings of the RMP inspection. City staff provided much RMP related information to EPA, including information that was in place prior to the inspection, at that meeting and subsequent to the meeting. The City has attached copies of much of the information previously provided to EPA to this document.

1) *Section A – Management.*

The owner and operator failed to develop a management system to oversee the implementation of the risk management program elements.

How was this addressed: The City has had for many years a thorough and detailed management system in place to oversee the implementation of the risk management program elements, including prior to the EPA inspection.

The chlorine gas system at the treatment plant is managed and operated in a very safe manner using established and recognized water treatment industry protocols. Highly trained and qualified water plant personnel manage the system 24 hours a day, seven days per week, 365 days per year. The operators at the treatment plant are licensed by the Kansas Department of Health and Environment (KDHE) to operate the system. Also, the system is well maintained by the licensed operators, full time plant mechanics, and chemical equipment industry representatives. The entire plant, including the operation and maintenance of the chlorine gas disinfection system, has a proven record of safety excellence.

Prior to the EPA inspection, the City actively evaluated the chlorine disinfection system and determined that the system needed to be modernized. Based on that evaluation, City staff took initiative to modernize the system through the proposed \$16 million *Water Treatment Plant and Wellfield Improvement Project* that will result in state-of-the-art facilities.

The sodium hypochlorite disinfection system will replace the existing gas chlorine system. The engineering design of the Project was performed by Carollo Engineers. The design is complete. The City has entered into a loan agreement with the Kansas Department Health and Environment to fund the project. The current estimated cost of the project is about \$16 million. Construction is scheduled to begin in 2008.

At the time of the EPA inspection, the project design was well under way. The new, modern chlorine disinfection system that is a major part of the project will result in state-of-the-art safety features for both the operators and public. The

system will meet or surpass all KDHE, Building Code, and industry requirements and standards. The City and design engineers have worked very closely with KDHE and the City Code Department to ensure that the project meets or surpasses all state and industry standards.

The intent of the RMP is “to prevent accidental releases of substances that can cause serious harm to the public and the environment from short-term exposures and to mitigate the severity of releases that do occur.” The City has worked very hard to do just that with the water plant improvement project. Although, the project construction will result in the City going into significant debt through a *Drinking Water State Revolving Loan*, the City believes it is necessary to fully modernize the plant, including construction a state-of-the-art chlorine disinfection system. Additionally, an updated RMP will be developed for the new disinfection system as part of the project.

2) Prevention Program – Safety Information.

The owner or operator failed to compile and maintain the following up-to-date safety information, related to regulated substances, processes, and equipment: Material Safety Data Sheets (MSDS) that meet the requirements of OSHA Hazard Communication Standard.

How was this addressed: Prior to and at the time of the EPA inspection, the latest MSDS sheet for chlorine provided by the chemical supplier was available, on site, at the water treatment plant, in the dedicated MSDS binder in the main hallway of the water plant. The City’s chlorine supply company provided the MSDS sheet. The City confirmed with the chlorine supplier that its version was the most recent MSDS sheet. The MSDS binder is kept in a prominent location in the main hallway at the water treatment plant. All water treatment plant employees are aware of the location of the MSDS binder. The EPA inspector did not review the binder and did not request to review the binder. There may have been miscommunication during the inspection on this issue. But, it is a fact that the latest MSDS for chlorine was available at the plant at the time of the inspection. The latest MSDS sheet continues to be available at the water treatment plant along with MSDS sheets for all other chemicals used at the plant.

3) Prevention Program – Safety Information.

Owner or operator failed to ensure that their facilities’ process is designed in compliance with recognized and generally accepted good engineering practices.

How was this addressed: The facility (water treatment plant) met all drinking water industry standards and generally accepted good engineering practices prior to and at the time of the inspection. The condition of the City’s water treatment plant, including the chlorine disinfection system, met and continues to meet all State of Kansas drinking water standards. The treatment plant was designed by Black and Veatch Engineers and constructed in 1970. A major expansion was designed in 1987 by Burns and McDonnell Engineers and constructed a year later.

Since commencing operations this plant has been regularly inspected by the Kansas Department of Health and Environment and has been found to comply with KDHE standards and acceptable industry and engineering standards.

The chlorine room and chlorine system meet the requirements of KDHE's minimum design standards manual entitled "Policies, General Considerations, and Design Requirements for Public Water Supply Systems in Kansas," 1995 edition.

Although the chlorine system meets current standards, City staff recognized that improvements could be made to modernize the system. On November 1, 2005, several months prior to receiving the notice of the EPA inspection, the City initiated a major, \$16 million water plant improvement project to modernize the plant. The project will construct a new building to house a state-of-the-art, modern chlorine disinfection system. In March 2006, the City entered into an agreement with Carollo Engineers to design the project. At the time of the EPA inspection, project design was well underway. The City has made this Project a high priority, even incurring significant debt for project construction through a *Drinking Water State Revolving Loan*.

4) *Prevention Program – Operating Procedures.*

The owner or operator failed to prepare written procedures...

How was this addressed: Prior to and at the time of the EPA inspection, there were written operating procedures for the chlorine system in use at the treatment plant. Subsequent to the inspection, the operating procedures were improved and copies provided to EPA.

At the time of the inspection, the daily procedures for changing chlorine cylinders, handling chlorine, and start-up and shutdown procedures were clearly and prominently posted in the chlorine room. Those procedures have been there for many years and are regularly used by plant operators. Those posted procedures were in place at the time of the inspection.

These operating procedures are also regularly reviewed by all plant personnel during monthly safety training meetings.

Additionally, O&M manuals for the equipment used in the covered process and chlorine handling procedures were at the treatment plant and available at the time of the inspection. The manuals that are used for detailed operating procedures are: "Series V-2000, V-Notch Chlorinator Instruction Book for W&T Equipment", "Wallace and Tiernan "Series 50-135 Chlorine Gas Detector Instruction Book", and "The Chlorine Manual" from the Chlorine Institute, Inc.

Further, the written procedures for calibration of the detection equipment were available at the plant at the time of the inspection in the Wallace and Tiernan

“Series 50-135 Chlorine Gas Detector Instruction Book”. This document was in use and available at the plant at the time of the inspection.

Subsequent to the inspection, the City improved and updated its written procedures and submitted them to EPA.

5) *Prevention Program – Maintenance.*

The owner or operator failed to prepare or implement procedures to maintain the on-going mechanical integrity of the process equipment.

How was this addressed: Prior to and at the time of the EPA inspection, the City did have O&M manuals for plant equipment, including chlorine equipment, at the treatment plant. The maintenance procedures found within the O&M manuals were in use and available at the time of the inspection. Equipment maintenance procedures are detailed in the “Series V-2000, V-Notch Chlorinator Instruction Book for W&T Equipment”, and “Wallace and Tiernan “Series 50-135 Chlorine Gas Detector Instruction Book.” The manuals were available at the plant during the inspection. However, they were not reviewed nor requested by the inspector.

Also, the plant is staffed and maintained 24 hours a day, seven days per week by water treatment plant operators licensed by KDHE. The treatment plant operators follow established protocol to inspect plant equipment, including chlorine equipment, at a minimum of twice during every shift. There are two full-time mechanics at the plant that regularly inspect and maintain all equipment, including the chlorine system equipment. Maintenance records of plant equipment, including the chlorine system equipment, are recorded in the plant supervisor’s weekly report, mechanics maintenance log, and the operator’s daily logbook.

Additionally, contractors specializing in maintenance of this type of equipment perform some of the more complex maintenance work on the chlorine equipment.

The plant’s proven record of chlorine safety demonstrates the high level of maintenance that is performed regularly on the equipment. Additionally, in the thirty-eight year history of the plant, there have been no accidental chlorine releases.

6) *Prevention Program – Compliance audits.*

The owner or operator has failed to perform or certify compliance audits are conducted at least every three years to verify that the procedures and practices are adequate and are being followed.

How was this addressed: Black and Veatch Engineers compiled the City’s Risk Management Plan in 1999. City staff performed the update to the Risk Management Plan in June 2004. City staff were not able to locate a full record of the 2003 compliance audit at the time the inspection. The City performed a

compliance audit in July 2006 prior to the RMP inspection. Additionally, the City performed an additional compliance audit in September 2007 and submitted it to EPA.

7) *Risk Management Plan.*

The owner or operator failed to update in accordance with emergency contact information required at 68.160(b)(6) has changed since June 21, 2004, the owner or operator failed to submit corrected information within thirty days of the change.

How was this addressed: The City's longtime water plant supervisor abruptly retired near the end of 2005. Upon his retirement, an acting plant supervisor was appointed. The City immediately updated the new acting water plant supervisor's name with the Kansas Department of Health and Environment. Due to an oversight, the name change was not immediately made in EPA's RMP database. However, when the City discovered the oversight on July 19, 2006, the name change was immediately updated in the RMP database.

Please note that the emergency contact phone number and address remained the same, only the name of the supervisor changed. The water plant is staffed 24 hours per day, seven days per week, 365 days per year. If there had been a need for EPA to contact the water treatment plant supervisor or any other person at the treatment plant at any time, there would not have been any communication issues or problems.

O & M manual. In use at plant
prior to inspection, and at time of
inspection.

SERIES V-2000
V-NOTCH CHLORINATOR
500 LB/24 HR
MANUAL CONTROL

INSTRUCTION BOOK

FOR W&T EQUIPMENT

 **WALLACE & TIERNAN**

WALLACE & TIERNAN, INC.
25 MAIN STREET • BELLEVILLE, NJ 07109-3057

PLEASE NOTE: THIS EQUIPMENT HAS BEEN DESIGNED TO PROVIDE RELIABLE SERVICE; HOWEVER, BEFORE ATTEMPTING TO INSTALL, OPERATE, OR SERVICE THE EQUIPMENT, THIS INSTRUCTION BOOK MUST BE READ, UNDERSTOOD, AND OBSERVED. FAILURE TO DO SO CAN RESULT IN IMPROPER OPERATION WITH POSSIBLY HAZARDOUS CONSEQUENCES.

INTRODUCTION

This instruction book provides installation, operation and maintenance instructions for the Wallace & Tiernan Series V-2000 V-Notch Chlorinator. Of necessity more information is provided than applies to each specific installation; disregard those details which do not apply to your installation.

Instructions for accessory equipment, where applicable, are provided in separate books which are included with that equipment.

The complete chlorinator consists of a control module, an injector, and a vacuum regulator. The vacuum regulator is covered by a separate instruction book provided with that equipment.

WARNING: DO NOT USE THIS EQUIPMENT FOR SWIMMING POOL, WATER PARK OR SIMILAR RECREATIONAL APPLICATIONS. IT IS NOT SOLD FOR SUCH USE.

The Wallace & Tiernan V-Notch Chlorinator is designed to meter and control the flow of chlorine gas. An injector accepts this flow of gas, mixes it with water and delivers the resultant chlorine solution to the point of application. By using a selection of rotameters and valve seats, the chlorinator may be adapted to meet a wide range of capacity requirements. Thus, as requirements change over a period of time, the capacity of the chlorinator may be changed accordingly. A large indicator scale on the rotameter permits a direct reading of the rate of chlorine feed in pounds per 24 hours. A simple adjustment permits setting the feed rate at any value within the range of the chlorinator. Once set, the feed rate will remain constant unless manually changed by the operator.

WARNING: HAZARDOUS GAS IS PRESENT IN THIS EQUIPMENT DURING NORMAL OPERATION. TO AVOID POSSIBLE SEVERE PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT, READ THIS INSTRUCTION BOOK AND THE CHLORINE MANUAL BEFORE CONNECTING THIS EQUIPMENT TO A SUPPLY OF CHLORINE GAS. OPERATION AND MAINTENANCE OF THIS EQUIPMENT MUST BE RESTRICTED TO TRAINED, QUALIFIED PERSONNEL WHO ARE COMPLETELY FAMILIAR WITH THESE INSTRUCTIONS. CONSULT FACTORY FOR APPLICATIONS AGAINST A NEGATIVE HEAD (PARTIAL VACUUM) OR A POSITIVE BACKPRESSURE OF LESS THAN 1.0 PSI (28 INCHES OF WATER) IN THE SOLUTION DISCHARGE LINE.

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SECTION 3 - OPERATION

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1 PREPARATION FOR OPERATION

WARNING: HAZARDOUS GAS IS PRESENT IN THIS EQUIPMENT DURING NORMAL OPERATION. TO AVOID POSSIBLE SEVERE PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT, READ THIS INSTRUCTION BOOK AND THE APPROPRIATE GAS MANUAL BEFORE CONNECTING THIS EQUIPMENT TO A SUPPLY OF GAS. OPERATION AND MAINTENANCE OF THIS EQUIPMENT MUST BE RESTRICTED TO TRAINED, QUALIFIED PERSONNEL WHO ARE COMPLETELY FAMILIAR WITH THESE INSTRUCTIONS.

When all connections specified under INSTALLATION have been made, check the chlorinator as follows:

- a. With the chlorine supply container valve(s) shut off, ensure that there is water at the point of application ready for chlorination.
- b. Turn on the water supply to the injector with the V-notch plug closed all the way (clockwise). An injector suction gauge reading of 25-30 inches Hg indicates proper injector operation.
- c. Open V-notch plug all the way (counterclockwise).
- d. While the injector is operating and the chlorine supply is off, observe the float in the rotameter. If the float is not resting on the bottom stop, a vacuum leak ahead of the rotameter is indicated. If this is observed, the leak may be in one of the following places:
 - (1) Through the seat in the pressure relief valve. This can be determined by holding a finger over the vent connection on the pressure relief valve. See SERVICE for correction.
 - (2) At the ring gasket at the bottom of the rotameter. This can be corrected by proper lubrication of the ring gasket with a film of silicone grease and ensuring that the rotameter is seated on the ring gasket.
 - (3) At any tubing connector or pipe fitting in the chlorine supply line. This may be corrected by tightening the connector or fitting, or by replacing any defective connector O-ring.

In use at plant prior to inspection for system O & M
Also in use at time of inspection.

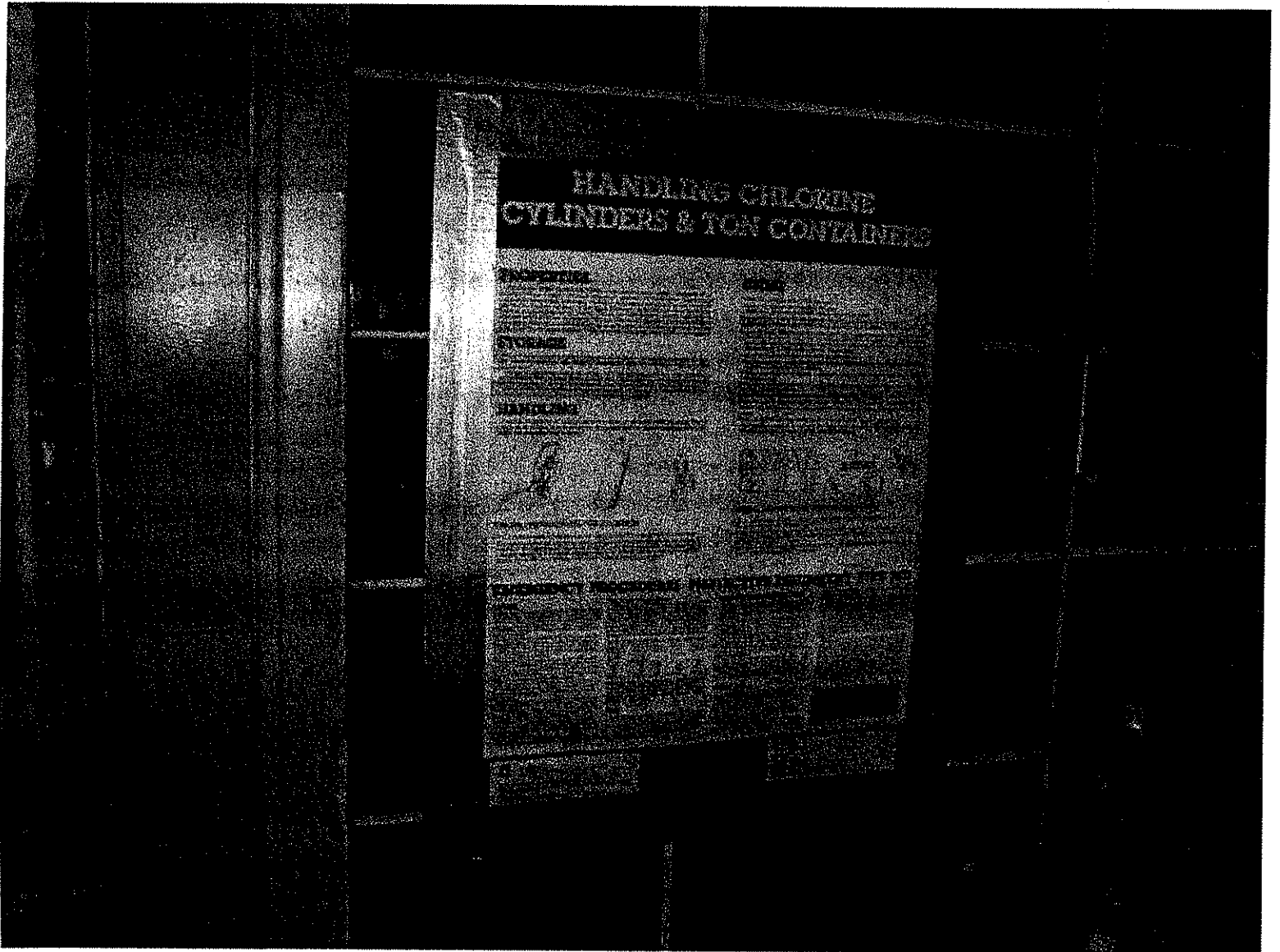
THE CHLORINE MANUAL

The Chlorine Institute, Inc.

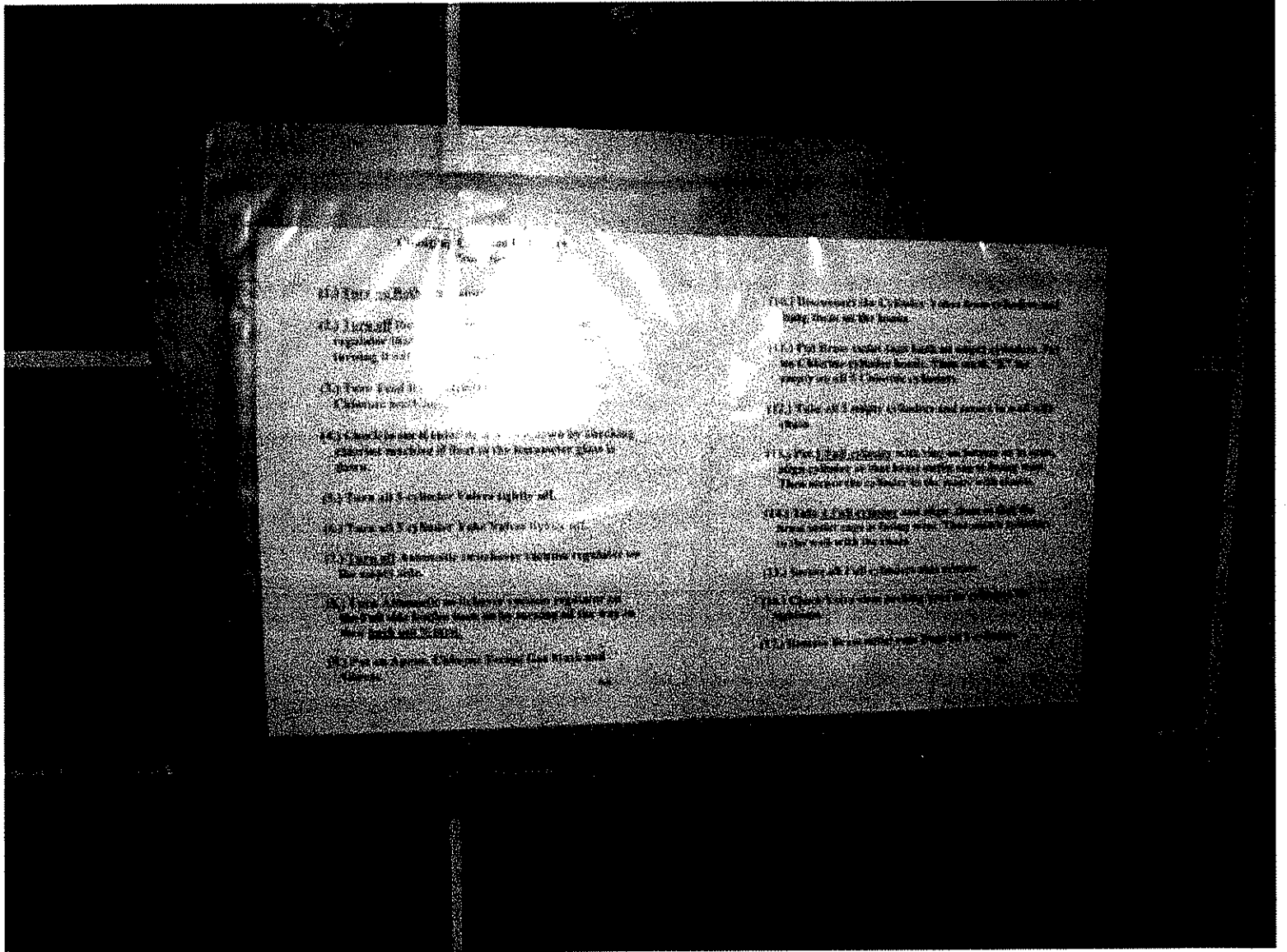
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Chlorine Handling Procedures posted
on wall in water plant chlorine room
in place prior to inspection and at time
of inspection.



Chlorine operating procedures posted in
chlorine room. In place prior to inspection,
and at time of inspection



Chlorine system operating procedures
In place prior to inspection and at time
of inspection.

Chlorine system operating procedures

- 120.1. Check for leaks with the detector.
- 120.2. Check for leaks on all 5 Full's tanks.
- 120.3. Check for leaks with the detector.
- 120.4. Check for leaks on all 5 Full's tanks.
- 120.5. Check for leaks on all 5 Full's tanks.
- 120.6. Check for leaks on all 5 Full's tanks.
- 120.7. Check for leaks on all 5 Full's tanks.
- 120.8. Check for leaks on all 5 Full's tanks.
- 120.9. Check for leaks on all 5 Full's tanks.
- 120.10. Check for leaks on all 5 Full's tanks.

MSDS binder in main hallway
of water plant in use prior to and
at time of inspection.



Plant operators log book, includes O & M.
In use prior to and at time of inspection.

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Plant operators log book

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Old M manual. In use at
water plant prior to and
at time of inspection.



C A Curtis
Bill Martin

Allyson

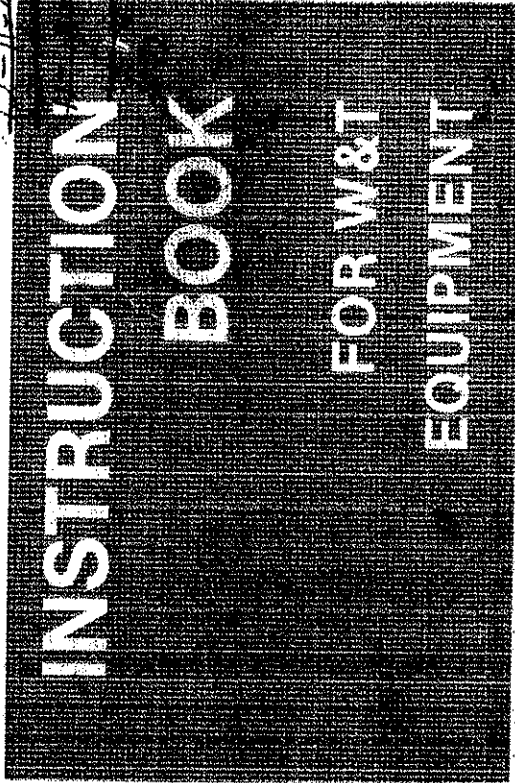
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LAST CHANGE OF SERIAL NUMBER

SERIES 50-135
CHLORINE GAS DETECTOR

BOOK No. WDA.50.135

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WALLACE & TIERNAN DIVISION
PENNALT CORPORATION
25 MAIN STREET
BELLEVILLE NEW JERSEY 07109

WALLACE & TIERNAN
PENNALT
EQUIPMENT • CHEMICALS
HEALTH PRODUCTS

WALLACE & TIERNAN
PENNALT
EQUIPMENT • CHEMICALS
HEALTH PRODUCTS

PLEASE NOTE: THIS EQUIPMENT HAS BEEN DESIGNED TO PROVIDE RELIABLE SERVICE. HOWEVER, BEFORE ATTEMPTING TO INSTALL, OPERATE, OR SERVICE THE EQUIPMENT, THIS INSTRUCTION BOOK MUST BE READ, UNDERSTOOD, AND OBSERVED. FAILURE TO DO SO CAN RESULT IN IMPROPER OPERATION WITH POSSIBLY HAZARDOUS CONSEQUENCES.

REGIONAL OFFICES

INSTALLATION, OPERATION, MAINTENANCE AND SERVICE INFORMATION

Direct any questions concerning this equipment which are not answered in the instruction book to the Reseller from whom the equipment was purchased. If the equipment was purchased directly from Wallace & Tiernan Division, PENNIVALT Corporation, contact the nearest office indicated below.

UNITED STATES

BOSTON
P.O. Box 351
Walpole, MA 02081
(617) 762-1820

CHICAGO
2801 Midwest Road
Suite 210
Oak Brook, IL 60521
(312) 620-8820

CLIFTON
842 Broad Street
Clifton, N.J. 07013
(201) 472-7300

COLUMBUS
1900 E. Dublin - Granville Road
Suite 304-A
Columbus, OH 43229
(614) 895-0811

DALLAS
7610 Stemmons Freeway (1-35E)
Suite 190
Dallas, TX 75247
(214) 531-3850

KANSAS CITY
P.O. Box 875
Shawnee Mission, KS 66201
(913) 384-3933

LOS ANGELES
1930 S. Brea Canyon Rd.
Suite C220
Diamond Bar, CA 91765
(714) 861-1006

WASHINGTON, D.C.
11501 Georgia Ave.
Suite 210
Wheaton, MD. 20902
(301) 933-2110

SEATTLE
Bldg. No. 1, Suite 209
300 - 120th Ave. N.E.
Bellevue, WA 98005
(206) 455-1298

WINTER HAVEN
P.O. Box 708
Winter Haven, FL 33880
(813) 293-7707

CANADA

If the equipment was purchased directly from Wallace & Tiernan Division, Pennwalt of Canada Limited, contact the nearest office indicated below.

ALBERTA
207 Fourteenth St., N.W.
Calgary, Alberta T2N 1Z6
(403) 263-0573

BRITISH COLUMBIA
470 Granville Street
Suite 535
Vancouver, British Columbia V6C 1V5
(604) 692-8541

MANITOBA
104-1280 Archibald Street
Winnipeg, Manitoba R2J 0Z3
(204) 256-8004

NOVA SCOTIA
P.O. Box 2818, DEPS.
Dartmouth, Nova Scotia B2W 4R4
(902) 463-1994

ONTARIO
925 Warden Avenue
Scarborough, Ontario M1L 4G5
(416) 751-7561

QUEBEC
Room 207
4280 Blvd. Metropolitan East
Montreal, Quebec H1S 1A2
(514) 729-2856

1.010-1W

INTRODUCTION

The Wallace & Tiernan Series 50-135 Chlorine Gas Detector is a compact instrument capable of detecting very low concentrations of chlorine in air, and initiating alarms and ventilation systems for protection of plant and personnel.

The detector is carefully assembled and tested throughout. It is sold under a definitive warranty which, however, is dependent on the equipment being operated and serviced in accordance with the instructions given.

WARNING: TO AVOID POSSIBLE SEVERE PERSONAL INJURY OR DAMAGE TO EQUIPMENT, THIS EQUIPMENT SHOULD BE INSTALLED, OPERATED AND SERVICED ONLY BY TRAINED, QUALIFIED PERSONNEL WHO ARE THOROUGHLY FAMILIAR WITH THE ENTIRE CONTENTS OF THIS INSTRUCTION BOOK.

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Series 50-135 detector	1
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General description	1.2
Circuit description	1.3
Installation and operation	2
Unpacking	2.1
Location	2.2
Electrical connections	2.3
Preparation for operation	2.4
Calibration	2.5
Operation	2.6
Maintenance	3
Routine maintenance	3.1
Battery replacement	3.2
Troubleshooting guide	3.3

ILLUSTRATIONS

Basic components	Fig. 1
P.C. Board — mother	Fig. 2
Plug-in P.C. board	Fig. 3
Schematic wiring	Fig. 4
Installation wiring for remote cell	Fig. 5
Spare parts list	

50.135 (10—86)

REGIONAL OFFICES

INSTALLATION, OPERATION, MAINTENANCE AND SERVICE INFORMATION

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BOSTON

P.O. Box 351
Watpole, MA 02081
(617) 762 1820

CHICAGO

2001 Midwest Road
Suite 210
Oak Brook, IL 60521
(312) 820 8820

CLIFTON

842 Broad Street
Clifton, N.J. 07013
(201) 472 7300

COLUMBUS

1900 E. Dublin - Granville Road
Suite 304-A
Columbus, OH 43229
(614) 895 0811

DALLAS

7610 Stemmons Freeway (1-35E)
Suite 190
Dallas, TX 75247
(214) 631 3958

CANADA

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ALBERTA

207 Fourteenth St. N.W.
Calgary, Alberta T2N 1Z6
(403) 263 0573

BRITISH COLUMBIA

470 Granville Street
Suite 535
Vancouver, British Columbia V6C 1V5
(604) 682 6541

MANITOBA

104-1280 Archibald Street
Winnipeg, Manitoba R2J 0Z3
(204) 256 8004

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P.O. Box 2818, DEPS.
Dartmouth, Nova Scotia B2W 4R4
(902) 483 1984

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Spare parts list	

50.135 (10—86)

1

Where the control box is required to be located remote from the detector cell, perhaps in another room, both the control box and cell are connected via a specially designed junction box. In this case, the cell plugs directly beneath the junction box which in turn is wired to the control box with minimum 20 gauge two-conductor shielded cable (the 4 ft extension cable supplied with the unit is NOT used). The local junction box is drilled to accept two countersunk head screws to attach the box to the wall.

2.3 Electrical Connections (Fig.1 and 2)

All electrical connections to the unit are made to a terminal strip located at the base of the mother circuit board. To gain access to the strip, unscrew the four retaining screws securing the front cover and lift off the cover.

WARNING: ENSURE THAT POWER SUPPLY IS TURNED OFF BEFORE MAKING CONNECTIONS.

The power supply is wired through the left hand conduit hub. The unit is supplied to operate on 110V/120V ac 50/60 Hz. Check nameplate to ensure correct voltage model has been supplied. Connect the external alarm circuits to the appropriate terminals (ref Fig.2 and 4) via the right hand conduit hub, remembering the current rating of the alarm relays. Finally, replace the front cover and secure with the four corner screws.

2.4 Preparation for Operation

The cell is supplied with the cell capsule empty. Remove this and replace with the filled cell capsule supplied. The cell capsule is simply held in position by the pressure of the 'O' ring seal in the cell body. If the red cap on the filled cell capsule is difficult to remove, peel back the paper disc to expose the vent hole. Carefully fit the filled cell capsule to the electrode body and place the cell in its wall mounting clip. Fit the cover to the cell and connect the cell to the control box using the extension cable supplied or, if the alternative method of mounting has been chosen, plug the cell directly under the control box or junction box.

2.5 Calibration

On initial start-up it is expected that the Cell Failure lamp will flash. This is due to the cell not having fully absorbed the electrolyte and in consequence the background current from the cell being lower than the normal $1 \mu A$ -level. The cell needs approximately 48 hours to stabilize. If after this period the Cell Failure lamp continues to flash, it may be necessary to adjust the bias to the cell. This is done by adjusting the 'SET' preset potentiometer VRI on the front panel of the unit until the needle of the cell current meter registers in the centre of the white band on the front panel. A thin-bladed screwdriver is necessary to make the adjustment.

Note: The cell will need time to recover following exposure to chlorine, the time being dependent on the degree of exposure. Recovery is almost immediate following a short exposure to a relatively low concentration, or after using the 'TEST' facility. However, when exposed to high concentrations (50 to 100 ppm) for say 30 minutes it will take 1 to 2 hours for the cell to recover to within working limits. Full recovery from the latter condition will take in the order of 24 hours.

To give access to the DIP switch S1, the front panel must be removed by unscrewing the captive screws at the four corners. When replacing the front panel, ensure that the meter, alarm lamps and switches, mounted on the plug-in board bracket, correctly mate with the clearance holes in the front panel.

Changes in ambient temperature may cause the cell current and hence the meter reading to fluctuate. Should the temperature change sufficiently to drive the meter needle into either red zone, the cell current should be reset to zero using the 'SET' potentiometer.

If the alarm set points need changing from the factory setting of 1 PPM (Warning) 3 PPM (Alarm), this can be arranged by changing the settings on a DIP switch on the plug-in board. The switch, shown in Fig.3A, has 8 numbered sliders. Positions 5 to 8 set the alarm operational points, while positions 1 to 4 set the corresponding alarm test levels. The selection is made by moving the sliders in the direction of their molded-in arrows, ie towards the lamp and switch bracket. The list below tabulates the function of each slider.

Slider	Setting
1	1 PPM 'Warning' Test Level
2	3 PPM
3	3 PPM 'Alarm' Test Level
4	15 PPM
5	15 PPM 'Alarm' Set Point
6	3 PPM
7	3 PPM 'Warning' Set Point
8	1 PPM

Thus for the factory setting of 1 PPM (Warning) and 3 PPM (Alarm), sliders 1, 3, 6 and 8 will be selected. Remember that whichever of the two settings for 'Warning' and 'Alarm' points is selected, the corresponding levels must be chosen for the Test facility.

2.6 Operation

Switch on line voltage and check that the 'Power Supply' lamp glows red and that both alarm lamps flash. Cancel the alarms by pressing the 'Reset' button. If the 'Alarm' cancels but the 'Warning' lamp continues to flash, allow 30 seconds and press the 'Reset' again.

When both alarm lamps have been cancelled, check the correct operation of the alarms by using the Test toggle switch. Move the toggle to the left and release. The 'Warning' lamp should now flash and can be cancelled by pressing the 'Reset' button.

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Note: The cell will need time to recover following exposure to chlorine, the time being dependent on the degree of exposure. Recovery is almost immediate following a short exposure to a relatively low concentration, or after using the 'TEST' facility. However, when exposed to high concentrations (50 to 100 ppm) for say 30 minutes it will take 1 to 2 hours for the cell to recover to within working limits. Full recovery from the latter condition will take in the order of 24 hours.

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4	15 PPM
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6	3 PPM
7	3 PPM 'Warning' Set Point
8	1 PPM

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Department of Fire Services

2000 Denison ♦ Manhattan, KS 66502 ♦ 785-587-4504 ♦ Code Services 785- 587-4506 ♦ Emergency Dial 911

May 17, 2007

To whom it may concern:

This is in regard to potential emergency response to the City of Manhattan water plant, located at 1201 North Third Street. In the event of an emergency at the plant involving hazardous materials, our department's hazardous materials team would be activated to respond. Our department maintains a regional response team in the State of Kansas system administered by the State Fire Marshal's office. We currently have 25 personnel on staff who are trained at the hazardous materials technician level. The remainder of our 77 emergency response personnel are trained at the "operations" level. We have adequate equipment available to make a "level A" entry to deal with the chemicals on the site. We also have two chlorine "A" kits available for use. Our standard response to a hazardous materials incident at this location would be at least 8 technician-level responders and enough support personnel to make a safe entry. The initial response would be 2 engines and a command vehicle and it would expand from there based on the situation. If our resources were not enough to handle any emergency at this location, more trained technicians and equipment are available at our request from the State response system.

The Manhattan Fire Department has been providing hazardous materials response at the technician level for at least 10-15 years. Our team has evolved over the last several years and we continue to improve our response capabilities and the equipment we have on hand. Please feel free to contact me if you have any further questions or concerns.

Sincerely,

Scott Clark
Chief Training Officer
Hazardous Materials Team Leader
Manhattan Fire Department
785-587-4504

City of Manhattan Water Treatment Plant Shutdown Procedure

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 - a) From City screen (Figure 1), left click on City Wellfield.
 - b) When Wellfield screen (Figure 2) appears, wells that are running are in red. Left click on each running well, and the Well Control Dialog Box (Figure 3) will appear.
 - c) Left click on switch in the Well Control box to turn off each well pump.

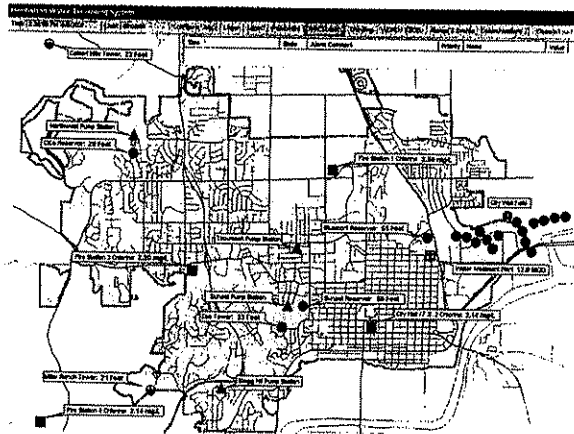


Figure 1 - City screen

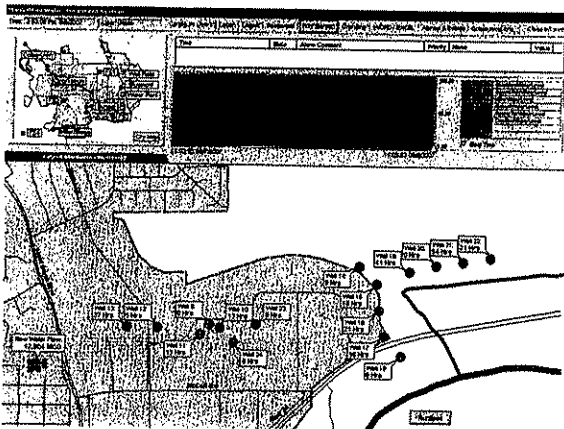


Figure 2 - Wellfield screen

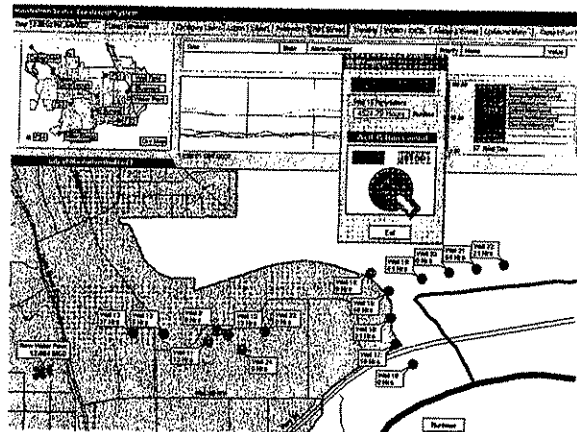
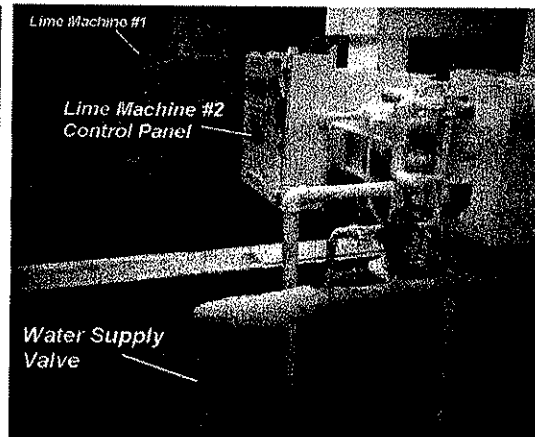
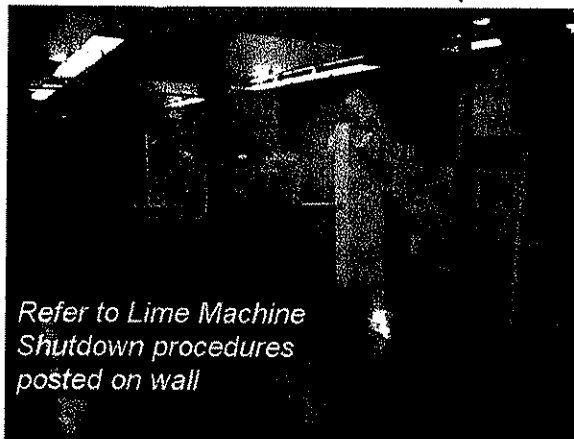
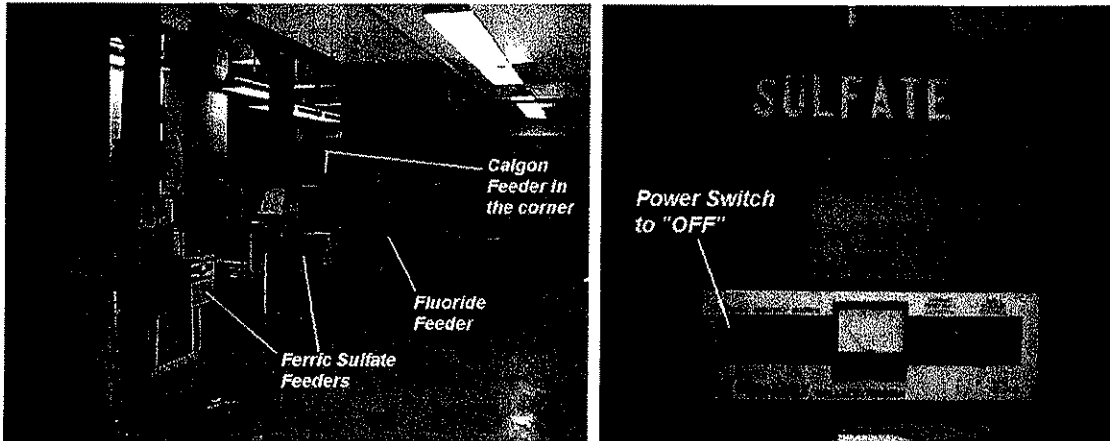


Figure 3 - Well Control box

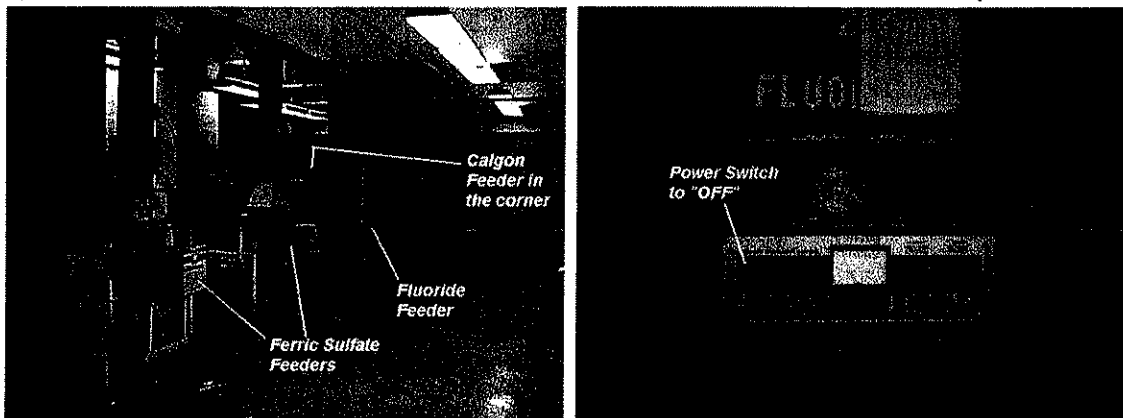
- 2) LIME MACHINES- Shutdown procedure on the wall.



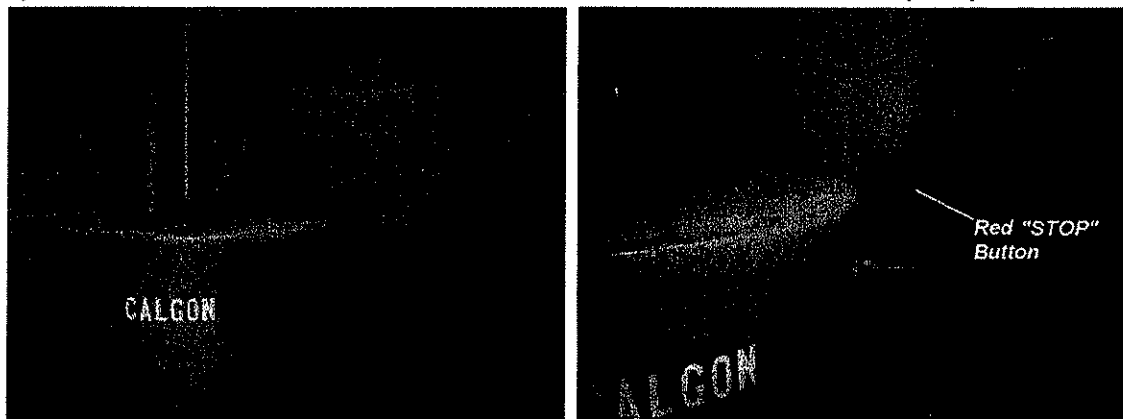
3) FERRIC SULFATE FEEDERS- Power switch from "ON" to "OFF" at control panel.



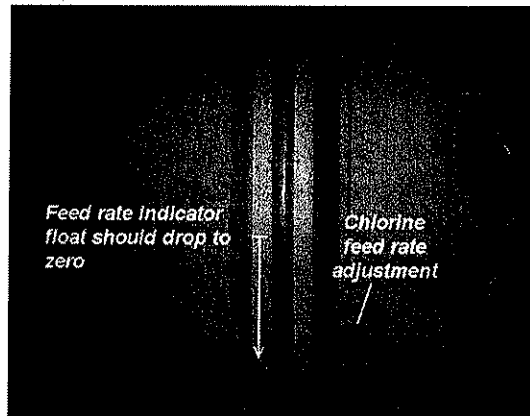
4) FLUORIDE FEEDER - Power switch from "ON" to "OFF" at control panel.



5) CALGON FEEDERS - Press red "STOP" button - one for each pump.

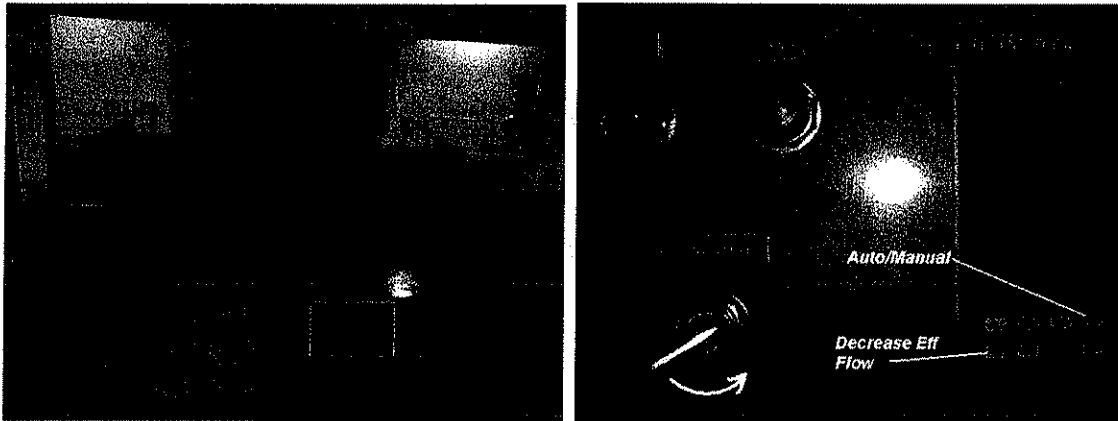


6) Chlorine Room - Turn rate adjustment on both chlorinators down to zero.

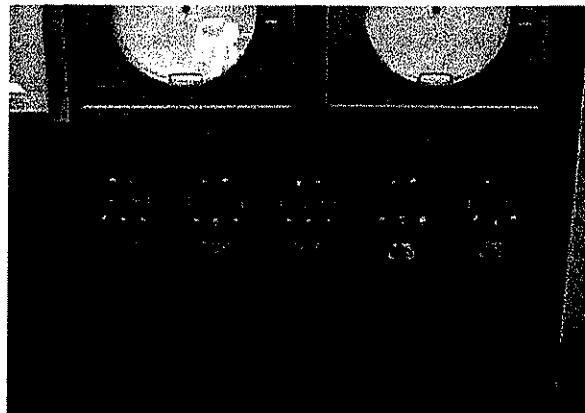


7) Filter Room – As flow from wellfield drops, shut off flow to filters by 1) Turn "INFLUENT" valve to "OFF" position. 2) Select manual ("A/M" key) on keypad, then 3) Decrease effluent flow to zero using down the "▽" key.

IMPORTANT - Leave one filter "ON", and in AUTO.



8) High and Low Service Pumps can stay on as long as water depth in the clearwells is above 6 ft. When level in the clearwells approaches 6 ft, turn off both High and Low Service Pumps on wall at operator's station.



**City of Manhattan
Water Treatment Plant**

Chlorine Shipment Inspection Checklist

- 1) Truck properly positioned and secured?
- 2) Chlorine gas warning signs in place?
- 3) Personal protective equipment available?
- 4) Dolly available?
- 5) General condition of shipment?
- 6) Correct number of cylinders?
- 7) Valve protective housings in place?
- 8) Current hydrostatic test results available?

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City of Manhattan
Water Treatment Plant
Chlorine Detector Weekly Maintenance Schedule 2007

WARNING: CHLORINE IS A HAZARDOUS SUBSTANCE. THIS CHLORINE DETECTOR IS A DEVICE TO INDICATE THE PRESENCE OF CHLORINE GAS IN AMBIENT AIR. TO MAINTAIN NORMAL OPERATION, IT IS ESSENTIAL THAT THE FUNCTIONING OF THE DETECTOR IS CHECKED AND VERIFIED FREQUENTLY.

TASK	July 17	July 19	July 23	Aug 2	Aug 10	Aug 17	Aug 21
	By <i>WLD</i>	By <i>WLD</i>	By <i>WLD</i>	By <i>WLD</i>	By <i>PM</i>	By <i>PM</i>	By
1 Check cell electrolyte level	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>
2 Check operation of alarm circuits using the "Test" button (Notify all WTP personnel BEFORE testing)	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>
3 Check the operation of the "Cell Failure" function by unplugging the cell and then reconnecting.	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>
4 Check the operation of the battery backup by temporarily switching off the line voltage to the unit, while leaving the unit switched on. The "Power Supply" LED should glow green. If switching off the line voltage triggers the alarms, this will indicate a fault in the battery supply which must be investigated.	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>
5 Clean case to remove any dust	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>
<i>A change batt.</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>	<i>WLD</i>

IMPORTANT: Record any replacement of electrolyte solution or battery on Chlorine Room Maintenance Log at the Mechanics Workstation. Calibration, Operation, Maintenance and Troubleshooting Procedures can be found in the Wallace & Tieman Series 50-135 Chlorine Gas Detector Manual at the Mechanics Workstation.

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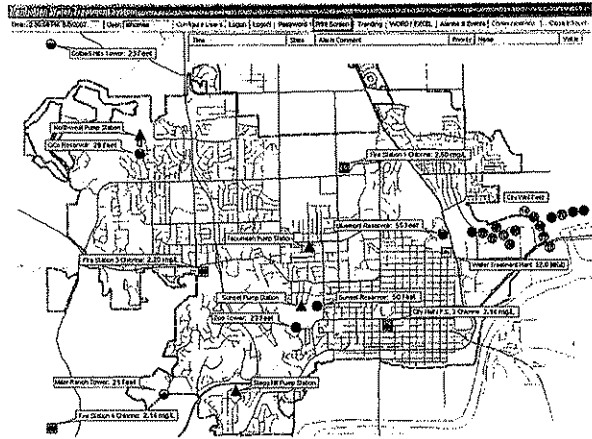


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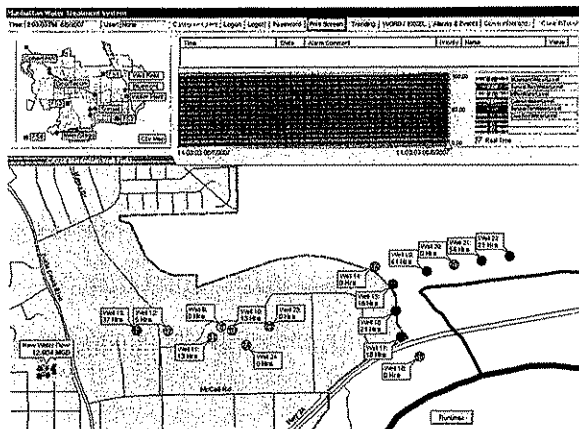


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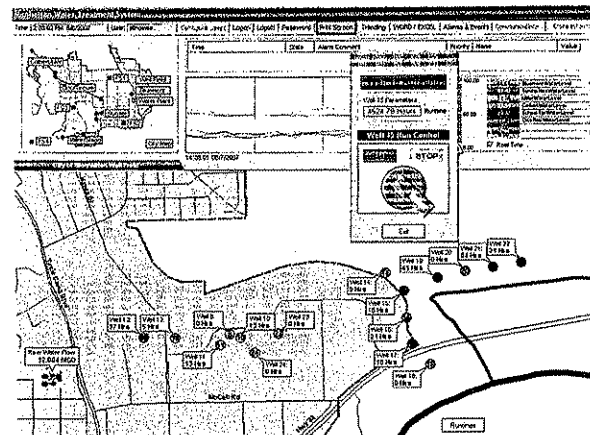
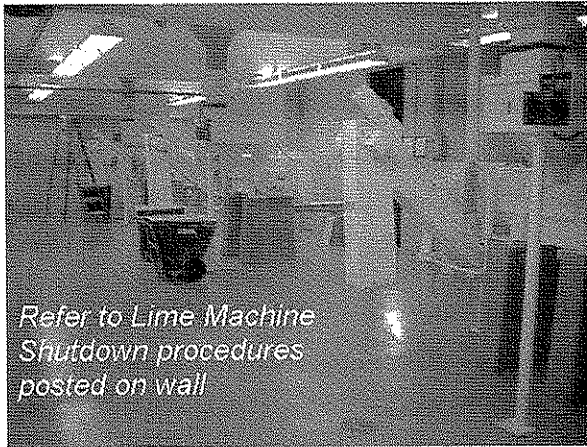
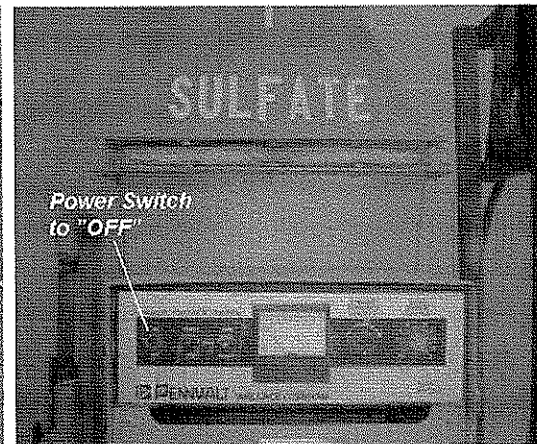
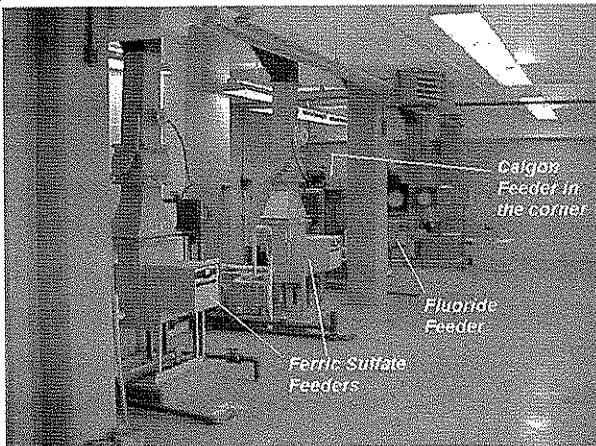


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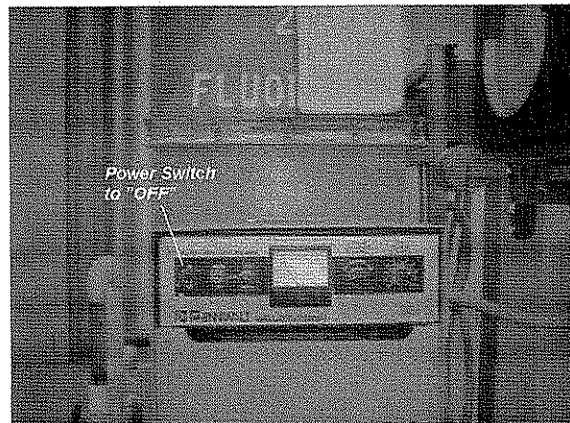
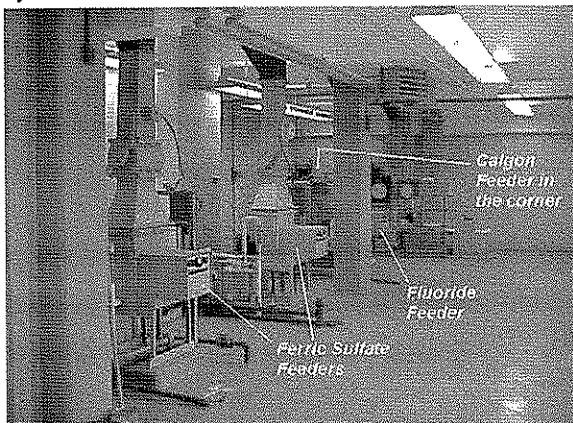
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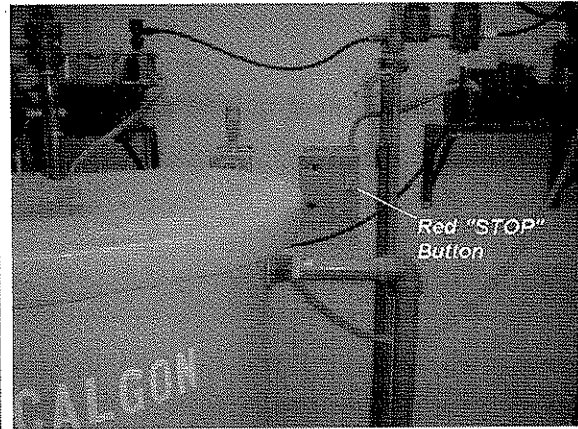
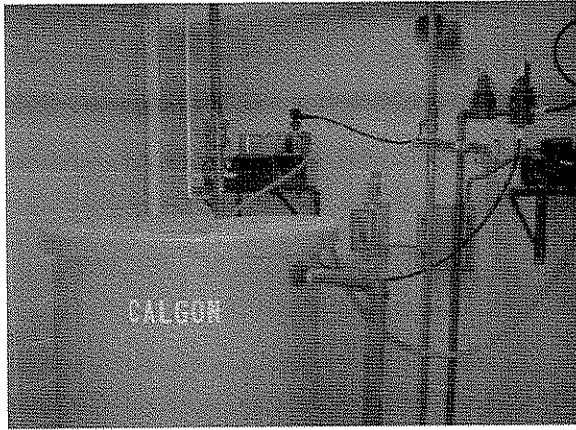
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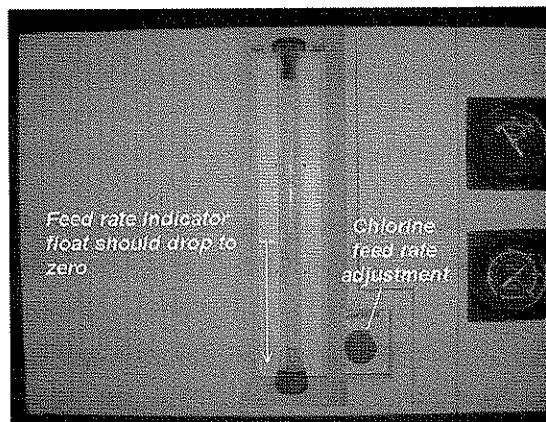
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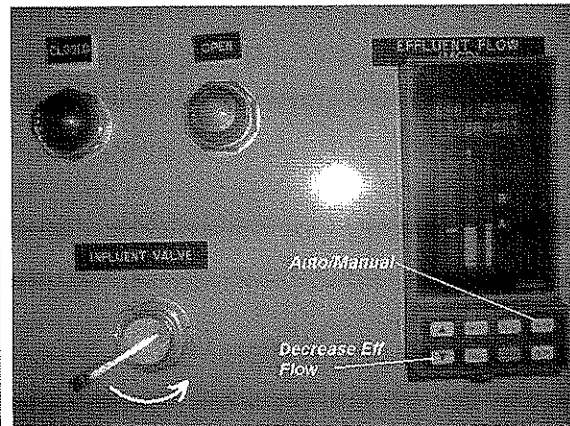
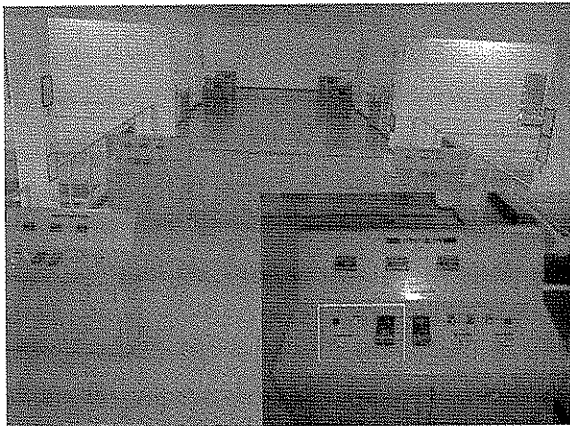
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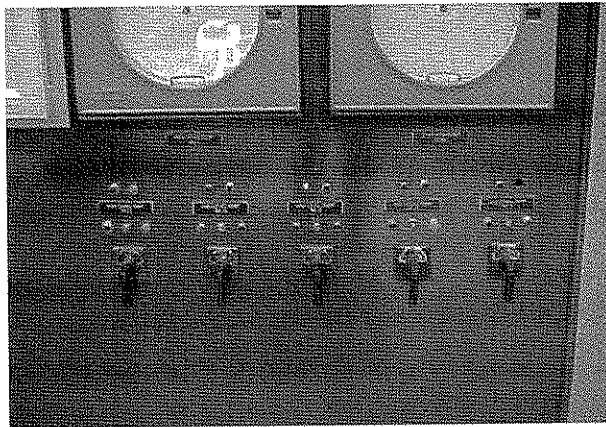
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City of Manhattan Water Treatment Plant

Procedure - Changing Chlorine Cylinders

1) Check both ventilating fans are ON at electrical boxes out side the door to the Chlorine Room.

Left box - turn switch to "HAND".

Right box – Press green "START" button.

2) Turn off the automatic switchover vacuum regulator that is on the full bank of cylinders by turning it out until it clicks.

3) Increase feed rate on chlorinator(s) up to maximum.

4) Check float(s) in rotameter(s). Chlorine flow should be zero.

5) Using the cylinder wrenches, turn all 5 cylinder valves tightly off.

6) Turn all 5 yoke valves tightly off.

- 7) Turn off the automatic switchover vacuum regulator that is on the empty bank of cylinders by turning it out until it clicks.
- 8) Turn the automatic switchover vacuum regulator that is on the full bank of cylinders back on by turning it all the way in, then back out 1/2 turn.
- 9) Disconnect the cylinder yokes from empty cylinders and hang the yokes on the hooks.
- 10) Put brass outlet caps on all 5 empty cylinders.
- 11) Put cylinder valve hoods on all 5 empty cylinders and clearly mark cylinder with "E".
- 12) Secure all 5 empty cylinders to wall with the chain.
- 13) Put one full cylinder (with ring on bottom) on to the scale and align so that brass outlet cap faces west. Then secure cylinder with chain.

- 14) Align 4 full cylinders – brass outlet caps facing west – and secure with chain.
- 15) Secure remaining full cylinder.
- 16) Check packing nuts on all 5 cylinder valve stems for tightness.
- 17) Remove brass outlet caps from all 5 cylinders.
- 18) Replace lead washers from all 5 cylinder yokes with new lead washers.
- 19) Attach and tighten yokes to cylinder outlets on all 5 cylinders.
- 20) Check for leaks with ammonia bottle by opening 1 cylinder valve $\frac{1}{4}$ turn. If there is a leak, close valve and tighten yoke. Repeat until leak is stopped. It may be necessary to replace lead washer. Repeat this process for all five full cylinders.
- 21) Open all 5 full cylinder valves 1 full turn.

22) Open all 5 valves on cylinder yokes.

23) Use ammonia bottle to check for leaks on feed lines (pigtailed) between yokes and the manifold. Also check all 5 cylinder packing nuts on valve stems.

24) Balance scale to 150 lbs.

25) Turn on the automatic switchover vacuum regulator. Turn it all the way in, then back out 1/2 turn. Button should be out.

26) Adjust feed rate on chlorinator to appropriate setting.

27) Use ammonia bottle to check for leaks on all five full cylinders including feed lines (pigtailed), valves, yokes and the manifold. Also check all 5 empty cylinders that were just replaced.

28) Turn off ventilating fans as necessary at electrical boxes outside door to Chlorine Room.

Left box - turn switch to "OFF".

Right box – Press red button.

29) Record the date, time, and which bank was changed in the Daily Report and on the Calendar.

IN THE MATTER OF City of Manhattan Water Treatment Plant, Respondent
Docket No. CWA-07-2007-0007

CERTIFICATE OF SERVICE

I certify that a true and correct copy of the foregoing Expedited Settlement Agreement (ESA) was sent this day in the following manner to the addressees:

Copy hand delivered to
Attorney for Complainant:

Sarah Thibos LaBoda
Assistant Regional Counsel
Region VII
United States Environmental Protection Agency
901 N. 5th Street
Kansas City, Kansas 66101

Copy by Certified Mail Return Receipt to:

Jerry McIntyre
Deputy Director of Public Works/Utilities
City of Manhattan Public Works Department
1101 Poyntz Avenue
Manhattan, Kansas 66502-5497

Dated: 2/29/08



Kathy Robinson
Hearing Clerk, Region 7