TECHNICAL COMMITTEE MEETING
Tuesday November 19, 2013
2nd Floor Conference Room
Plant Site, 111 Harbor View Avenue, Stamford, CT 06902

5:30 p.m.

Attendees:

Dan Capano	Chairman, Technical Committee
Daniel Schwartz	Committee Member
William Brink	Executive Director, WPCA
Prakash. Chakravarti	Supervising Engineer, WPCA
William Degnan	Plant Supervisor, WPCA
Jeff Smith	Handronex Manhole SmartCover

1. **Call to Order, Pledge and Roll Call**
   Chairman Dan Capano called the meeting to order at 5:30 pm.
2. **Presentation by Jeff Smith of Handronex Manhole SmartCover**
   D Capano introduced Mr.Jeff Smith to the Committee. Mr. J Smith presented the committee on the features of an attachment to manhole covers. The unit can monitor the water level in the manhole and sends alert signal for sewer surcharges via Wi-Fi to a central monitoring center in California. It can also sense and send in an alert if the manhole cover is opened. (Product brochure is being made part of the meeting minutes).
3. **Review and approval of previous meeting minutes.**
   D Schwartz made a motion to approve the meeting minutes for October 16, 2013 seconded by D Capano. The motion was carried 2-0-0.
4. **Status of Odor Control and memo on Sludge Processing Building Air Balance by Wright-Pierce**
   B. Brink stated that Air Balance Inc. was hired to do air balancing in the sludge processing building. He presented the committee with the air balance report by Wright-Pierce. Actual air flows were found to be within approximately 10 percent of design except for the sludge loading area. D Capano asked if they found the reason for the high hydrogen sulfide measurements in the blend tank room. B Brink replied that it was found that a fire damper which should be normally open was shut, preventing ventilation of the sludge blend tank and filtrate wet well. The fire damper hinges and the links were rusted and could not be opened B Degnan indicated that the fire damper has been ordered. B Brink said that the table in the report shows the design ventilation rates and the actual measured rates and the recommendation to adjust the rates in the two floors of the sludge dewatering building and to replace the dampers and louvers which are corroded. B Brink indicated that the suction ductwork in the belt filter press and the gravity belt thickeners rooms is below the units and should be investigated to be relocated over the belts to be more effective. Also, it was recommended to cover the fitrate wet well hatch openings with rubber mats to prevent odorous air from escaping. (The air balance report is being made part of the meeting minutes)

   B Brink said that the sludge dryer was down and it was very odorous from the sludge hauling trailers. All the scrubbers are operational. He said that the operators are manually adding about 2.5 gallons per hour of hypochlorite to the raw sewage pump station scrubber until the RTO probe is delivered.
5. **Service Contract for Operation and Maintenance of Sludge Drying Facility**
   B Brink stated that they met with Synagro to discuss the contract options given by Synagro . One option was to run two shifts/day under normal operation and pay for the third shift. The all-inclusive option was at a premium, and 24 hour four- day operation could not be entertained since the plant can not store waste activated sludge for the 3 days that the dryer would not be in sevice.. The proposed option that included gas usage capped at 75 Cents per therm

was accepted. He mentioned that Synagro would be compensated if the gas price were to increase and Synagro pays for all costs for excess gas usage over and above the maximum specified therm per dry ton .

B Brink stated the meeting was friendly and they would go back and send us a red lined agreement with the ownership of the conveyor included and any references to construction related items would be deleted. He would like to get Legal Department's approval and present the agreement to the WPCA Board next Wednesday. D Capano asked that the Technical Committee review the agreement prior to presentation to the Board.

6. **Update on RFP #616 for Wastwater Engineering Services.**
D Schwartz stated that the proposals from nine firms were received for Task 1 for Upgrade of screenings removal, raw sewage pumping and septage receiving. Following a review of the proposals the selection committee short listed three firms namely AECOM, ARCADIS and Wright-Pierce, who were invited to a presentation interview. Seven proposals were received for Task 2 for redesigning the flow distribution to the four secondary clarifiers. The three firms that were invited for presentations are Hazen & Sawyer, Wright-Pierce and ARCADIS.

7. **Pilot of Wi-Fi for PL & C at WPCF**
D Capano presented the committee with his assessment for improving the process data control communication utilizing Wi-Fi. He stated the current analog system could be replaced with a digital system for the transmitting the data for the odor controls. The data would be transmitted wireless via Wi-Fi with duplex communication over a large area at a relatively low power. A point to point bridge would provide data that can be integrated into the SCADA. AROHIVE network. Access points costs about $1,500 each and would cover 2000 to 4000 square feet. The wireless network would replace the wired network with benefits in

   - Cost savings of 50% to 75%
   - Avoid maintenance of conduits and cables
   - Voice over Wi Fi/Cellular
   - Video maintenance
   - Job tracking: clock-in & clock-out
   - CMMS integration

He will plan on presenting the proposal to the WPCA Board in February with a sketch.

8. **Capital Projects status updates**
P Chakravarti reported that the construction of the Carriage Drive sewer project is about 40% complete. Perna Lane and Wedgemere sewers are in design.
P Chakravarti also mentioned that Stantec Engineers have submitted a draft report for improvements to the Dyke Lane pump station.

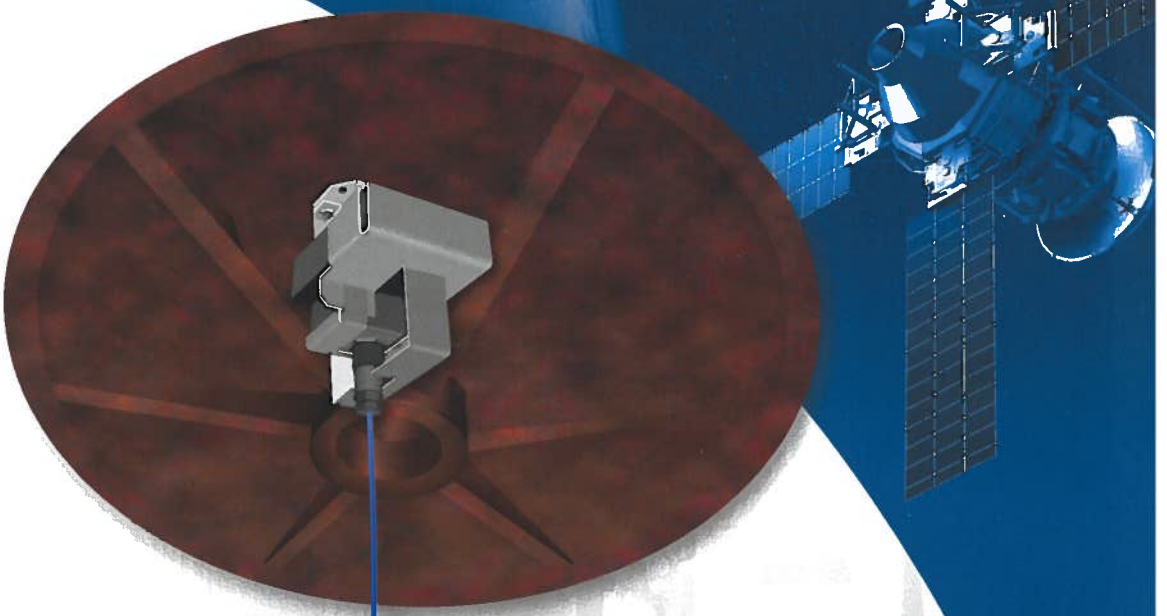
9. **New Business**
B Degnan mentioned that the operators noticed the UV disinfection lamps were failing and they pulled the banks out to investigate. They noticed black marks in the lamps at the same location in the lamps. B Degnan contacted the supplier Phil Pino from Wedeco who admitted to a manufacturing defect in the batch of lamps that was supplied and would replace all the lamps with new ones at no cost. He was meeting with them on Nov 20, 2013 at noon

He also said that there were occasional spikes in the fecal coliform count due to algae buildup and was working on getting price quotes for installing algae cleaning weir brushes in the secondary clarifier to minimize the algae buildup.

10. There being no other new business to discuss D Capano asked for a motion to adjourn the Techinical Committee. D Schwartz made the motion to do so. Motion carried 2-0-0. The meeting was adjourned at 7:23 pm.

SMARTCOVER®

Monitoring and Alarm System



- 24/7 Monitoring
- Cloud Based
- Real Time Alarms
- Stand Alone Solution
- Save Time and Money
- Long Term Data Trending
- No Confined Space Entry
- Two Way Satellite Communications

Solutions for Industry

- Water
- Wastewater
- Utility Vaults
- Communications
- Air Quality

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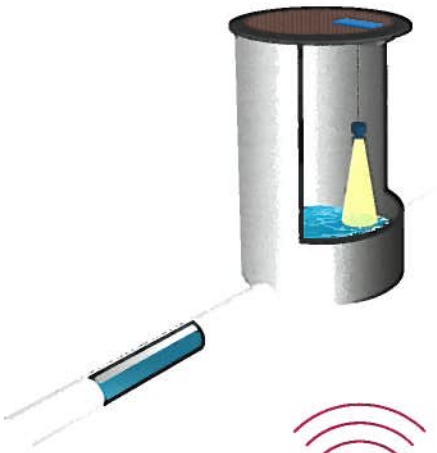
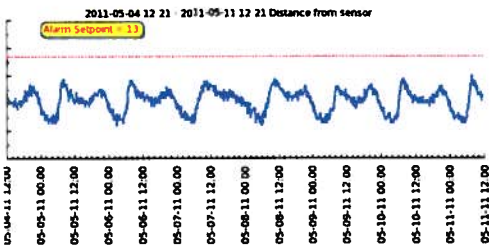


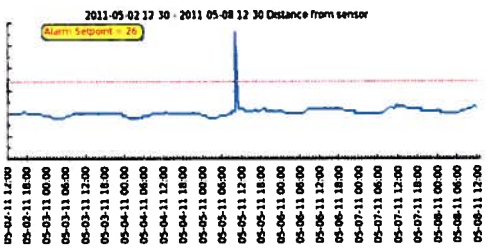
- Ultrasonic Sensor Monitors Liquid Level
- Intrusion Alarm
- Continuous Real Time Monitoring

Level Sensing



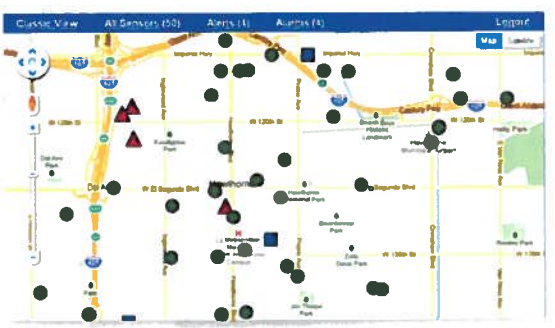
- Instant alarming for level
- Alarms to: Mobile Phones, Pagers, and Emails
- System Maintenance Alerts

Alarm



- Web Based Map Interface is Easy to Use
- No Software to Purchase or Install
- Operator Friendly
- Units are Easy to Relocate
- Plug and Play Components
- Onboard PowerPack Lasts 1 year
- Smart Phone Compatible

Map Interface



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- Satellite Communications Provide Extremely High Reliability
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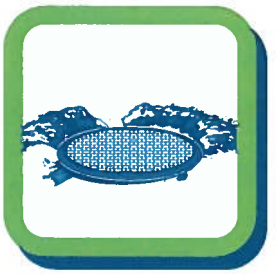
Applications



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- Prevent SSOs by Responding to Alarms
- Monitor & Quantify CSOs
- Fail Safe Back-up for Lift Stations to Prevent Overflows
- Support for Regulatory Compliance

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- Predict When to Clean Before a Spill Occurs
- Support Asset Management Program
- Adjust Cleaning Frequencies Based on Scientific Information
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- Capacity Analysis
- Wide Deployment at Low Cost
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Underground Utility Vault Monitoring

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- Measures High Water Level
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Monitoring and Alarm System

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- Simple to Use and Maintain
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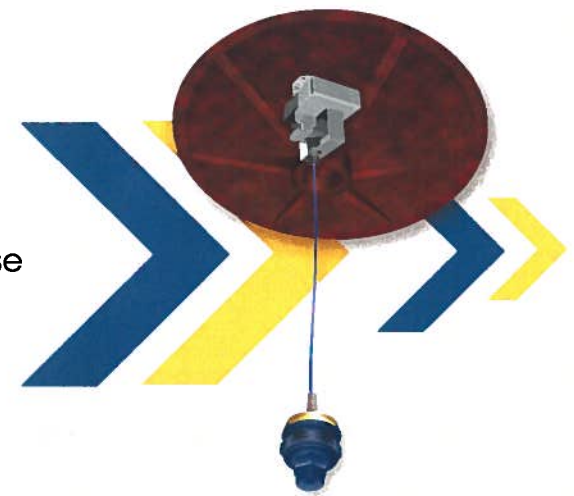
- Prevents Environmental Damage from Spills
- Protects Aging Infrasctucture

- Self-Contained Unit with Onboard Power
- Reliable Wireless Communications
- False Alarm Rate Less Than 1 in 10 Million
- 100% Web Based, No Software to Purchase
- Attaches to Existing Cover or Hatch
- No Confined Space Entry to Install



- Direct to Satellite Communication from Anywhere on Earth
- Plug and Play, Connect Components... it works
- Priced for Wide Scale Deployment
- User Friendly, Map Based, Secure Website Displays Locations, Alarms and Alerts, Historical Data, Maintenance Logs

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- CSO Locations
- Siphons
- Interagency Connections
- Security Concern Locations

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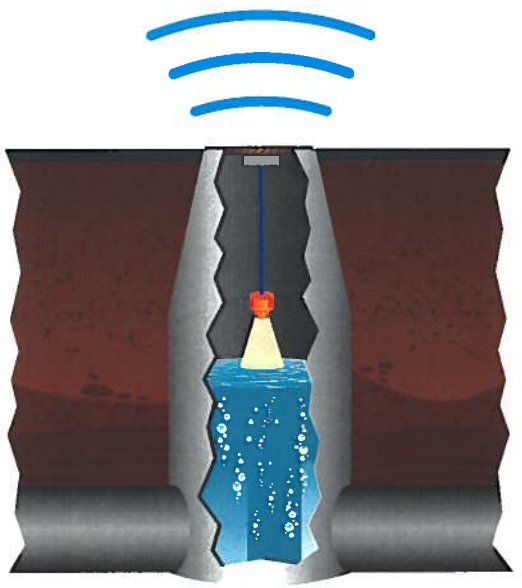
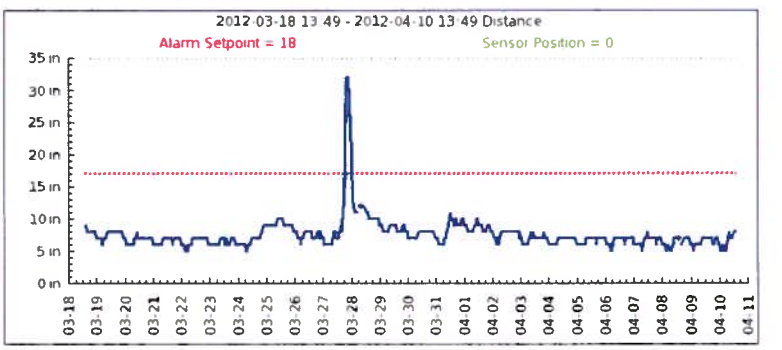
Monitoring System

The SmartCover® is a wireless, self-contained monitoring system with onboard power • Designed for the most extreme environments, the device attaches directly underneath a cover or hatch, and is capable of communicating from anywhere on Earth directly to a Low Earth Orbit satellite system • The unit requires no confined space entry for installation and is easily relocated by field crews • The SmartCover® provides continuous data collection for long term trending and sends an immediate alarm whenever a customer determined alarm point is reached • Alarms are sent directly to end users • All the data is available through a secure website from any computer • There is no proprietary software to purchase • The simple design and operation of the SmartCover® system adds value, not complexity.





SMARTCOVER® Specifications

SmartCover® Unit:

Weight:	4.6 lbs.
Size:	5" x 6" x 6"
Power:	Provided with on-board SmartCover® PowerPack™
Battery Life:	12 months
Environmental:	NEMA 6P, IP-68
Mounting:	Mechanical Mount, SS Hardware
Antenna:	3/16" Conformal flat antenna
Level Sensor Range:	3 inches to 81 inches with option to 20 feet
Level Sensor Resolution:	Nominal 1", 0.1" available
Intrusion Detection:	3-axis, continuous
Temperature Range:	-40°C to 60°C

Communications

Method:	2 way, Direct to Satellite, wireless digital signal
Status Reporting:	Upon Alarm and at 1 hour intervals
Standard Content:	• Water Level, PowerPack™ Voltage and Radio Signal Strength • Maintenance Alerts • Alarms and Acknowledgements • Map based User Interface • Maintenance and Location Logs
Security:	128-bit, SSL, Username and Password Protection

WRIGHT-PIERCE
Engineering a Better Environment

MEMORANDUM

TO:	William Brink, PE Prakash Chakravarti, PE	DATE:	November 14, 2013
FROM:	Christopher Pierce, PE Prashanth Emmanuel	PROJECT NO.:	12742A
SUBJECT	Stamford WPCA - Air Balancing		

Introduction

As part of W-P's recommendations to re-balance the air flow for the Sludge Disposal Building Odor Control System, the Stamford WPCA hired Air Balancing Services Co. (Air Balancing) to provide testing, adjusting and balancing services for the existing ductwork system connected to the dewatering scrubber.

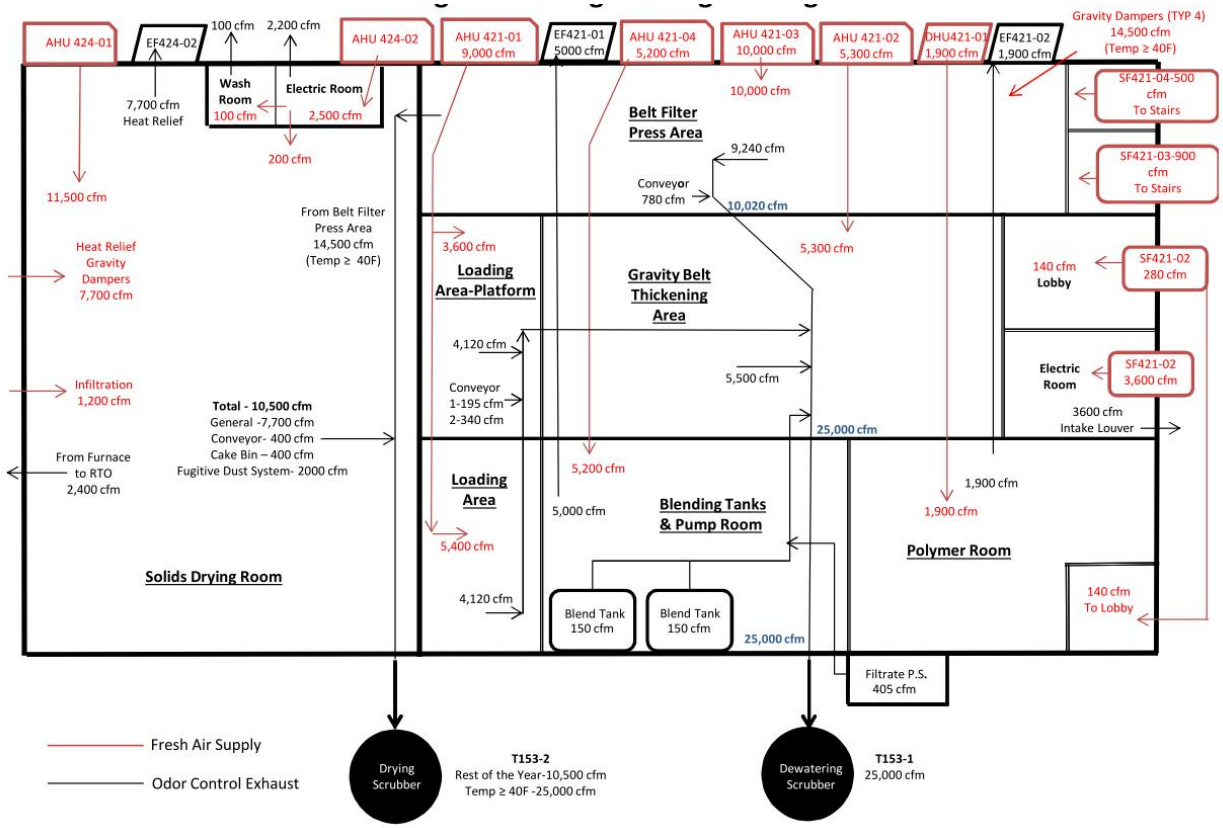
Per field investigations and testing conducted by W-P in April 2013, the Town reduced the fan operating speed by installing a smaller sheave to obtain proper air flow rates through the scrubber to reduce misting. After replacement of the fan sheave, odor levels at the filtrate pump station and the sludge blending tank room area were observed to have high levels of H_2S. It was thought that with the adjustment of the fan speed, the ductwork system may need to be rebalanced to obtain proper air flow rates from each of the different areas connected to this scrubber system.

The other potential cause for the issues at the filtrate pump station and sludge blending tanks was a blockage in the ductwork. W-P recommended that the WPCA investigate potential blockage points in the line and it was discovered that the fire damper on the duct between the blend tank room and truck loading area was closed. Opening this damper had a significant impact on reducing odors from these sources. If not already done, plant staff should replace this damper with a new, properly functioning fire damper. Although this was a primary cause of the issues with the sludge blending tanks and filtrate pump station, the WPCA wanted to proceed with the air balancing due to the significant change in air flow rates as a result of sheave change.

Results and Observations

Air Balancing conducted testing of the ductwork system on October 29, 2013. The firm utilized a Monarch Photo Tach meter, Shortridge Airdata Multimeter and a Fluke Ammeter to verify if the current air flow rates matched the design air flow rates as shown in Figure 1.

Figure 1
Town of Stamford WPCF
Sludge Processing Building Design Flow Rates



Air Balancing was able to obtain air flow measurements to compare with original design flows but was not able to conduct any balancing because many of the dampers are not operable as described in their report. Results of the flow measurements collected are summarized in Table 1 below. Although it was not possible to adjust the air balance of the system, based on the results in Table 1 most areas appeared to be operating within 10% of original design flows. The main area with the most significant difference was the truck loading area (first floor). Air Balancing reported that the air volume damper to the first floor is 90% closed and broken and cannot be

adjusted. This is resulting in more air being pulled from the second floor loading area and less being pulled from the first floor.

Table 1
Results of Air Balancing Testing
Sludge Dewatering Building

Floor Level	Location	Design Flow (CFM)	Measured Flow (CFM)	Difference (+/-)
First Floor				
	Loading Area	4,120	1,661	-2,459
Second Floor				
	Loading Area	4,120	6,040	1,920
	Loading Area-Conveyor	195	159	-36
	Loading Area-Conveyor	340	388	48
	Gravity Belt Thickening Area	5,500	5,938	438
	Blend Tank and Filtrate Pump Area	705	621	-84
Third Floor				
	Belt Filter Press Area	9,240	8,195	-1,045
	Conveyor	780	---	---
Scrubber				
	Odor Control Unit	25,000	24,000	-1,000

Based on the results, there does not appear to be a need to re-balance the entire system. However improvements are necessary. We have divided recommendations into short and long-term improvements.

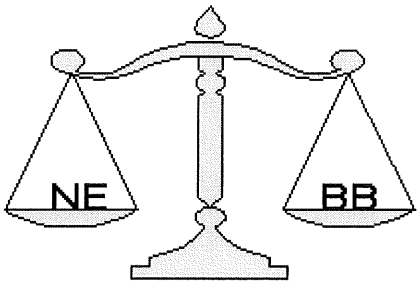
Short-Term Improvements

- Replace the fire damper on the duct between the sludge room and the truck loading area. This should be done as soon as possible.
- Replace the broken volume damper serving the 1st floor truck loading area.
- Clean grills of all intake louvers and remove debris.
- Place rubber mats over opening in access hatches at filtrate pump station.

Long-Term Improvements

- Belt Filter Area
    - Replace branch dampers with corrosion resistant dampers
    - Replace grills and face dampers.

- GBT Area
    - Replace exhaust branch dampers with corrosion resistant dampers.
    - Replace grills and face dampers.
- Blending Tank Area
    - Replace volume dampers.
- Loading Area (Second Floor)
    - Replace dampers at grills.



CERTIFIED TEST, ADJUST AND BALANCE REPORT

REPORT DATE: 10-30-13

PROJECT: STAMFORD WPCA
SLUDGE PROCESSING BUILDING
ODOR CONTROL SYSTEM
PRELIMINARY READINGS

ADDRESS: ONE HARBORVIEW AVE
STAMFORD, CT

CUSTOMER: CITY OF STAMFORD

NEBB TAB CONTRACTOR: AIR BALANCING SERVICE CO.
7 CORPORATE DR. UNIT 109-110
NORTH HAVEN, CT 06473
PHONE NUMBER: (203) 234-8222
FAX NUMBER: (203) 234-0456
WEBSITE: WWW.AIRBAL.COM

TABLE OF CONTENTS

PROJECT: STAMFORD WPCA PRELIMINARY READINGS
REPORT DATE: 10-30-13
SUBMITTED BY: AIR BALANCING SERVICE CO. NEBB CERTIFIED #2453
CODE: 13246T

CERTIFICATION

PROJECT: **STAMFORD WPCA**
SLUDGE PROCESSING BUILDING
ODOR CONTROL SYSTEM
PRELIMINARY READINGS

ADDRESS: **ONE HARBORVIEW AVE**
STAMFORD, CT

REPORT DATE: **10-30-13**

THE DATA PRESENTED IN THIS REPORT IS AN EXACT RECORD OF SYSTEM PERFORMANCE AND WAS OBTAINED IN ACCORDANCE WITH NEBB STANDARD PROCEDURES. ANY VARIANCES FROM DESIGN QUANTITIES WHICH EXCEED NEBB TOLERANCES ARE NOTED THROUGHOUT THIS REPORT.

THE AIR DISTRIBUTION SYSTEMS HAVE BEEN TESTED AND BALANCED AND FINAL ADJUSTMENTS HAVE BEEN MADE IN ACCORDANCE WITH NEBB "PROCEDURAL STANDARDS FOR TESTING - ADJUSTING - BALANCING OF ENVIRONMENTAL SYSTEMS" AND THE PROJECT SPECIFICATIONS.

SUBMITTED AND CERTIFIED BY:

NEBB TAB FIRM: AIR BALANCING SERVICE CO.
TAB SUPERVISOR: CHARLES W. BRUMLEY
REG. NO: 2453

SIGNATURE: _____

Air Balancing Service Company
NE BB
CHARLES W BRUMLEY
CERTIFICATION
2453
Exp. 3/31/15
Air and Hydronic Systems

TABB CERTIFIED TAB TECHNICIAN: KEITH J REYNOLDS
TECHNICIAN CERTIFICATION NO: BB1026921T

ICB TABB ANSI #0728
Testing, Adjusting and Balancing Bureau
The Professional's Choice℠
TABB Technician
Name: Keith Reynolds
TABB ID: BB1026921T
Expiration Date: 12/31/2014

** AIR INSTRUMENT CALIBRATION REPORT **

INSTRUMENT SERIAL NUMBER	APPLICATION	CALIBRATION
MONARCH PHOTO TACH SERIAL NO. 11082040	MOTOR AND FAN RPM'S	10/22/2013
SHORTRIDGE AIRDATA MULTIMETER ADM-860 SERIAL NO. M87464	MULTIMETER USED IN VELOCITY, STATIC PRESSURES, FLOWHOOD READINGS, DIFFERENTIAL PRESSURES, TEMPERATURE	02/27/2013
FLUKE AMMETER 323 SERIAL NO. 25240606	VOLTAGE AND AMPERAGE	10/22/2013

PROJECT: STAMFORD WPCA - PRELIMINARY READINGS
REPORT DATE: 10-30-13
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 13246CALI

NEBB CERTIFIED #2453

AIR GLOSSARY

ABBREVIATION	MEANING	ABBREVIATION	MEANING
AC	AIR CONDITIONER	MUA	MAKE-UP AIR
AHU	AIR HANDLING UNIT	N/A	NOT APPLICABLE/NOT AVAILABLE
AK	AREA FACTOR	NO.	NUMBER
AMP	AMPERAGE	OA	OUTSIDE AIR
CEF	CEILING EXHAUST FAN	OA%	PERCENT OF OUTSIDE AIR
CFM	CUBIC FEET PER MINUTE	OD	OUTSIDE DIAMETER
CNTRL	CONTROL	OED	OPEN END DUCT
CU FT	CUBIC FEET	PERF	PERFORATED DIFFUSER
CV	CONSTANT VOLUME	POS	POSITION
DD	DIRECT DRIVE	PRESS	PRESSURE
DEL	ACTUAL DELIVERED	PRIM	PRIMARY
DES	DESIGN	RA	RETURN AIR
DIFF	DIFFERENTIAL	RA%	PERCENT OF RETURN AIR
EF	EXHAUST FAN	RHC	REHEAT COIL
ESP	EXTERNAL STATIC PRESSURE (" WG)	RPM	REVOLUTIONS PER MINUTE
FPM	FEET PER MINUTE	RTU	ROOF TOP UNIT
FT	FEET	SA	SUPPLY AIR
H	HEIGHT	SF	SERVICE FACTOR
HP	HORSE POWER	SL	SLOT
HR	HOUR	SN	SERIAL NUMBER
HTG	HEATING	SP	STATIC PRESSURE (" WG)
L	LENGTH	SQ FT	SQUARE FEET
LD	LINEAR DIFFUSER	TEMP	TEMPERATURE
LFD	LAMINAR FLOW DIFFUSER	TF	THERMAFUSER
LR	LIGHT RETURN	TSP	TOTAL STATIC PRESSURE (" WG)
LT	LIGHT TROEFFER	VAV	VARIABLE AIR VOLUME
MA	MIXED AIR	VEL	VELOCITY IN FEET PER MINUTE
MAU	MAKE-UP AIR UNIT	VFD	VARIABLE FREQUENCY DRIVE
MAX	MAXIMUM	W	WIDTH
MD	MOTORIZED DAMPER	WEF	WALL EXHAUST FAN
MER	MECHANICAL EQUIPMENT ROOM	WG	WATER GAUGE
MFR	MANUFACTURER	W/	WITH
MIN	MINIMUM		

PROJECT: STAMFORD WPCA
SLUDGE PROCESSING BUILDING
ODOR CONTROL SYSTEM
PRELIMINARY READINGS

PROJECT DESCRIPTION: Balance air systems as requested

COMMENT:

1) GBT area, all 6 exhaust branch dampers should be replaced. They are rusted closed. Also the grills should be cleaned and face dampers replaced.
2) Loading Area 1st floor, face dampers are open, but do not move. They should be replaced.

   Loading Area 2nd floor, grills should be cleaned and face dampers replaced. Also the volume damper serving the 1st floor Loading Area is broken and 90% closed. This section of duct should be removed and replaced with a working damper.
3) Blending Tank Area, volume dampers should be replaced with working dampers.
4) Belt Filter Press Area, branch dampers rusted and do not move, should be replaced. Grills are extremely dirty and face dampers are rusted in position. They should all be replaced.
5) MUA systems were inquired about testing. All branch and face dampers on every system must be open and in working order for testing to be conducted.

SUBMITTED BY: AIR BALANCING SERVICE CO. **NEBB CERTIFIED #2453**
REPORT DATE: 10-30-13
CODE: 13246C

T153-1

** AIR INLET REPORT **

ROOM NO.	DESIGNATION		NO.	SIZE	AK	DESIGN CFM	DESIGN VEL	ACTUAL VEL	ACTUAL CFM	NOTES
	BLENDING TANKS & PUMP RM		1	10" DIA	.545	705	1294	1140	621	
	GRAVITY BELT THICKENING		2	38X18	4.75	5550	1168	1250	5938	
	LOADING AREA		3	26X20	3.611	4120	1141	460	1661	
	LOADING AREA PLATFORM		4	36X20	5.000	2060	412	825	4125	
	LOADING AREA PLATFORM		5	36X20	5.000	2060	412	383	1915	
	BELT FILTER PRESS AREA		6	34" DIA	6.304	10020	1589	1300	8195	
	LOADING AREA PLATFORM		7	8" DIA	.349	340	974	1113	388	
	LOADING AREA PLATFORM		8	6" DIA	.196	195	995	809	159	
	MAIN DUCT		1	48" DIA	12.564	25000	1990	1955	24563	

PROJECT: STAMFORD WPCA PRELIMINARY READINGS
SUBMITTED BY: AIR BALANCING SERVICE CO.
CODE: 13246-1

NEBB CERTIFIED #2453