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Watervliet Arsenal

Operation and Maintenance Report 2011

Vapor Intrusion Interim Corrective Measures

Main Manufacturing Area
Watervliet Arsenal
Watervliet, New York

April 2012

US Army Corps of Engineers

ARCADIS MALCOLM PIRNIE

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Operation and Maintenance Report - 2011

Vapor Intrusion Interim Corrective Measures

Prepared for:
U.S. Army Corps of Engineers
Baltimore District
Baltimore, Maryland
Contract No. W912DR-09-D-0016

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Appendices

1. Introduction

The Watervliet Arsenal (WVA) is a 140-acre government-owned installation under the command of the U.S. Army Tank-automotive and Armaments Command (TACOM) located in the City of Watervliet, New York. The WVA is located on the western shore of the Hudson River and approximately five miles north of the City of Albany (Figure 1-1). The WVA currently manufactures large caliber cannons and mortars.

The WVA consists of two primary areas: the Main Manufacturing Area (MMA), encompassing approximately 125 acres, where manufacturing and administrative operations occur, and the Siberia Area (SA), primarily used for the storage of raw and hazardous materials, finished goods, and supplies brought from the MMA (Figure 1-2). Broadway Street (New York State Route 32) and a six-lane interstate highway (Interstate 787) are located between the WVA and the Hudson River.

In accordance with the results and recommendations of the *Vapor Intrusion Investigation Report, Watervliet Arsenal, Watervliet, New York* (Malcolm Pirnie 2008), and subsequent discussions and agreements between the WVA, the New York State Department of Environmental Conservation (NYSDEC), and the New York State Department of Health (NYSDOH), the WVA implemented Interim Corrective Measures (ICMs) to mitigate vapor intrusion impacts at eight buildings within the Main Manufacturing Area of the WVA. The ICMs were implemented in accordance with the Administrative Order on Consent between the WVA, the NYSDEC, and the United States Environmental Protection Agency (USEPA), and consisted of the construction and operation of sub-slab depressurization systems (SSDSs) in eight buildings to prevent the intrusion of soil vapor containing chlorinated volatile organic compounds (CVOCs). ARCADIS, Inc. (ARCADIS), formerly Malcolm Pirnie, Inc. (Malcolm Pirnie), was retained by the United States Army Corps of Engineers – Baltimore District (USACE) to implement the ICMs on behalf of the WVA. The SSDS installation and startup testing was completed in October 2010 and the results submitted in a Construction Certification Report (Malcolm Pirnie, 2010).

This Operation and Maintenance (O&M) Report was prepared in accordance with the approved ICM Work Plan (Malcolm Pirnie, 2009) to document the ICM O&M activities completed during the 2011 operating period.

2. Background

The WVA performed a vapor intrusion investigation within, and adjacent to, the Main Manufacturing Area (MMA), and adjacent to the Siberia Area of the WVA, in November 2007 and February 2008. The purpose of the investigation was to assess whether CVOCs were present in the sub-slab soil vapor beneath, and the indoor air within, buildings located in the MMA, including those that once contained degreasing operations, as well as three off-site private residences along the southeastern WVA property boundary. The evaluation also assessed whether soil vapor at the WVA southern property boundary and northern property boundary adjacent to the Siberia Area contained CVOCs.

A total of 25 buildings in the MMA were sampled during at least one of the two investigation phases. Based on the results of the investigations, no further action was required at the off-site residences, the WVA property boundary, and at WVA Buildings 9, 18, 19, 23, 24, 35, 38, 44, 108, 110, 112, 115, 124, and 126. Sub-slab VOC concentrations at Building 15 will require monitoring of the indoor air, but not corrective measures. VOCs detected in the sub-slab at Buildings 116 and 123 were also in the range where indoor air monitoring would be required. However, since Building 116 is not occupied and Building 123 is only periodically used for painting operations, no monitoring will be conducted at these buildings. Indoor air monitoring will be conducted at Buildings 116 and 123 if the use of either building changes in the future. The buildings that required interim corrective measures are summarized in Table 2-1 below.

Table 2-1 – Buildings Requiring Soil Vapor Interim Corrective Measures

Building	Impacted Media	Target Chlorinated VOCs
20	Sub-Slab Soil Vapor	PCE, TCE, TCA
21	Sub-Slab Soil Vapor	TCE
22	Sub-Slab Soil Vapor	TCE
25	Indoor Air, Sub-Slab Soil Vapor	TCE, TCA
114	Indoor Air, Sub-Slab Soil Vapor	PCE, TCE
120	Sub-Slab Soil Vapor	PCE, Carbon Tetrachloride
121	Sub-Slab Soil Vapor	TCE
130	Sub-Slab Soil Vapor	TCE

Notes:
PCE – Tetrachloroethene
TCE – Trichloroethene
TCA – 1,1,1-Trichloroethane

The construction, installation, and startup testing of the SSDSs were completed on September 3, 2010 and summarized in the Construction Certification Report (Malcolm Pirnie, 2010).

3. SSDS O&M

As presented in the Construction Certification Report (Malcolm Pirnie, 2009), three types of SSDS units are used for corrective measures at the WVA.

- Type A SSDS - The Type A SSDS is used at Buildings 21 and 114. The Type A SSDSs use regenerative blowers. The effluent air from these systems is treated using vapor-phase granular activated carbon (GAC).

- Type B SSDS - Building 20 and Building 25 use Type B SSDS. The Type B SSDS uses positive-displacement rotary-lobe blowers. These systems are used where multiple extraction wells are required to provide negative sub-slab pressures over large areas. The effluent air streams from the Type B SSDSs are combined and treated using vapor-phase GAC.

- Type C SSDS - Buildings 21, 22, 120, 121, and 130 use Type C SSDS. The Type C SSDSs (with the exception of the Building 120 SSDS) use individual in-line fans for each extraction well . The Building 120 Type C SSDSs uses a high pressure fan system and is connected to two extraction wells. The effluent air from the Type C SSDSs vent directly to the atmosphere.

Operation and maintenance was performed on a monthly basis in accordance with the ICM Work Plan and as described below. A summary of the O&M data is provided in Tables 3-1 through 3-8 with field checklists provided in Appendix A.

3.1 Building 20

The Building 20 SSDS operated for approximately 8,000 hours without interruption during 2011 with an average flow of 347 cubic feet per minute (cfm) and average vacuum pressure of -67 inches of water ("H_2O), which are consistent with startup parameters. No significant repairs of the system were required.

3.2 Building 21

As indicated in the Construction Certification Report (Malcolm Pirnie, 2010), Building 21 uses a Type A system to mitigate the basement area (EW-1) and a Type C SSDS is used to mitigate the western portion of the first floor (EW-2).

3.2.1 Type A SSDS

The SSDS operated for approximately 6,200 hours during 2011 with an average flow of approximately 40 cfm and average vacuum pressure of approximately -20" H_2O, consistent with startup parameters.

For the majority of the year, the SSDS was drawing significant quantities of water from the extraction point which collected in the discharge hose, obstructing system air flow and causing periodic shutdown when the knockout tank filled. An additional primary knockout tank was installed near the extraction well in February 2011 but water that had previously collected in the extraction well piping froze, delaying startup of the system until April 2011. Between April 2011 and October 2011, approximately 2,300 gallons of water were collected by the primary knockout tank. A drain valve was installed in the effluent discharge stack in July 2011 to allow accumulated condensation to drain. The systematic evaluation of this issue concluded in October 2011 with installation of a make-up air valve before the primary knockout tank as a remedy. The addition of the make-up air valve allowed system pressures to be reduced at the extraction well, significantly reducing water in the knockout tanks, while maintaining adequate flow in the extraction well piping to prevent collected condensation from accumulating and obstructing air flow. Between October and December 2011, no issues were reported with the operation of the system.

3.2.2 Type C SSDS

The system operated continuously during the 2011 calendar year. Limited access to extraction point EW-2 precluded flow and vacuum measurements for the majority of the year, however, the average flow was approximately 8 cfm and average vacuum pressure was -3" H_2O, consistent with startup parameters.

3.3 Building 22

Both of the Type C SSDSs operated continuously throughout the 2011 calendar year with average flows of approximately 14 and 54 cfm and average vacuum pressures of -2.2 and -1.7" H_2O, for EW-1 and EW-2, respectively, consistent with startup parameters.

3.4 Building 25

The Building 25 SSDS operated for approximately 6,300 hours during 2011. An oil leak in the blower was detected during the April monitoring event that required system shutdown for approximately two months while the blower was sent out for repairs. There were no other problems with the system during the remainder of 2011. During 2011, the SSDS had an average flow of 489 cfm and average vacuum pressure of -21" H_2O, consistent with startup parameters.

3.5 Building 114

The system operated with limited interruption for a total of approximately 7,271 hours during 2011 with average flow of approximately 77 cfm and average vacuum pressure of -13" H_2O, greater than startup parameters.

3.6 Building 120

The system operated continuously during 2011 without interruption with average flows of approximately 28 and 33 cfm, for EW-1 and EW-2, respectively, consistent with startup parameters. The average vacuum pressure for both extraction points was -1.9" H_2O.

3.7 Building 121

With the exception of an approximately two month period in the beginning of the year when the fan motor was removed for warranty replacement, the system operated continuously during 2011 without interruption. The average flow was approximately 48 cfm and the average vacuum pressure was approximately -1.5" H_2O, consistent with startup parameters.

3.8 Building 130

Building 130 contains highly secured weapons storage which prevents regular access to the extraction well. Consequently, flow and vacuum measurements were only possible during the May 2011 inspection where the system operated at a flow of 60 CFM with a vacuum pressure of -1.8" H_2O . However, inspection of the blower on the building exterior confirmed continuous operation of the SSDS during the year, with the exception of October 2011. During this inspection, it was determined that the circuit breaker for

the blower was in the off position. Power was restored to the blower with no additional problems reported.

4. ICM Performance Monitoring - SSDS

Performance monitoring was conducted in accordance with the approved ICM Work Plan (Malcolm Pirnie, 2009). Effluent air samples were collected from the Type A and B SSDSs in March and November 2011. Analytical results from the March 2011 sampling event were submitted to the NYSDEC via EQuIS in June 2011. Results from the sampling events are summarized below. Indoor air sampling was conducted in accordance with the ICM Work Plan on November 21, 2011. The November 2011 indoor air results are summarized in Section 5.

4.1 Effluent Sampling

Pre- and post-carbon effluent samples were collected on March 30, 2011 and November 17, 2011 from the Type A (Building 21 and 114), and Type B (Building 20 and 25) SSDSs. However, as indicated in Section 3.2.1, the Building 21 Type A SSDS was not operating during the March 2011 sampling event, therefore no effluent air samples were collected from the system during that sampling event. The purpose of the sampling was to evaluate VOC discharge mass and assess removal efficacy of the SSDS GAC vessels.

4.1.1 Sampling Procedures

Effluent samples were collected from the SSDS pre- and post-carbon sampling ports using 6 liter Summa Canisters equipped with thirty-minute flow-controllers. The samples were submitted to Air Toxics LTD, Folsom, California, following chain-of-custody procedures for analysis of VOCs by United States Environmental Protection Agency (USEPA) Method TO-15. Analytical reporting forms are provided in Appendix B.

4.1.2 Sampling Results

Effluent sample results are summarized in Tables 4-1 through 4-3.

4.1.2.1 Building 20

As shown in Table 4-1, trichloroethene (TCE) and PCE were detected in the pre-carbon effluent samples in March 2011 (59 µg/m^3 and 16 µg/m^3, respectively) and November 2011 (78 µg/m^3 and 21 µg/m^3, respectively). Table 4-1 shows that these results are lower than the corresponding concentrations of these compounds in the 2010 pre-carbon effluent samples (250 µg/m^3 and 54 µg/m^3, respectively). 1,1,1-trichloroethane (1,1,1-TCA) was detected in the 2010 pre-carbon effluent sample at a concentration of 6.4 µg/m^3. As shown in Table 4-1, 1,1,1-TCA was not detected in the March or November 2011 pre-carbon effluent samples from this system.

As shown in Table 5-1, no CVOCs were detected in the March 2011 post-carbon effluent sample. Cis-1,2, dichloroethene (cDCE) was detected in the November 2011 Building 20/25 post-carbon effluent sample at a concentration of 5.4 µg/m^3.

4.1.2.2 Building 21

As shown in Table 4-2, the November 2011 pre-carbon effluent sample from the Building 21 SSDS contained cDCE (17 µg/m^3), TCE (72 µg/m^3) and PCE (14 µg/m^3). The concentrations of cDCE, TCE and PCE decreased from the August 2010 sampling event (44 µg/m^3, 270 µg/m^3, and 63 µg/m^3, respectively).

In November 2011, cDCE was detected in the post-carbon effluent sample at a concentration of 8.2 µg/m^3.

4.1.2.3 Building 25

As shown in Table 4-1, the pre-carbon effluent sample from the Building 25 SSDS contained cDCE, 1,1,1 TCA, TCE, and PCE in March 2011 (23 µg/m^3, 17 µg/m^3, 630 µg/m^3, and 20 µg/m^3, respectively) and in November 2011 (4.2 µg/m^3, 16 µg/m^3, 620 µg/m^3 and 24 µg/m^3, respectively). The 2011 concentrations were equal to or lower than the March 2010 concentrations for cDCE (23 µg/m^3), 1,1,1-TCA (100 µg/m^3), TCE (6200 µg/m^3) and PCE (58 µg/m^3).

As indicated in Section 4.1.2.1, the March 2011 post-carbon effluent sample contained no detectable VOCs, while the November 2011 post-carbon effluent sample contained cDCE at a concentration of 5.4 µg/m^3

4.1.2.4 Building 114

As shown in Table 4-3, the pre-carbon effluent sample from the Building 114 SSDS contained cDCE, TCE, and PCE in March 2011 (49 µg/m^3, 580 µg/m^3, and 1,700 µg/m^3, respectively) and in November 2011 (38 µg/m^3, 620 µg/m^3, 1800 µg/m^3, respectively). The concentrations of cDCE, TCE and PCE increased from the August 2010 sampling event, where cDCE was not detected and TCE and PCE were detected at concentrations of 6 µg/m^3 and 7.1 µg/m^3, respectively.

The post-carbon effluent sample in March 2011 contained 6.9 µg/m^3 of cDCE. Based on these data the primary and secondary 400 pound GAC vessels were replaced on May 12, 2011. No VOCs were detected in the November 2011 post-carbon effluent sample.

4.2 SSDS VOC Removal Mass

Tables 4-4 through 4-7 provide a summary of the estimated VOC removal mass for the Type A and B SSDSs.

4.2.1 Building 20

As shown in Table 4-1, the total VOC concentration in the pre-carbon effluent sample from the Building 21 was 75 µg/m^3 in March 2011 and 99 µg/m^3 in November 2011. As shown in Table 4-4, based on a flow of 128 cfm for March 2011 and 112 cfm for November 2011, the Type B SSDS was removing CVOCs at a rate of 0.31 pounds per year (lb/year) in March 2011 and 0.36 lb/year in November 2011.

4.2.2 Building 21

As shown in Table 4-2, the total VOC concentration in the November 2011 pre-carbon effluent sample from the Building 21 Type A SSDS was 103 µg/m^3. Table 4-5 shows that flow from the SSDS was approximately 26 cfm. This corresponds to a total estimated VOC removal mass of 0.09 lb/year.

4.2.3 Building 25

As shown in Table 4-1, the pre-carbon effluent sample from the Building 25 SSDS contained a total VOC concentration of 690 µg/m^3 in March 2011 and 664 µg/m^3 in November 2011. Table 4-6 shows that, at a flow of 139 cfm in the system was

removing CVOCs at a rate of approximately 3.1 lb/year in March 2011. In November 2011, the flow was approximately 129 cfm and CVOCs were removed at a rate of approximately 2.8 lb/year.

4.2.4 Building 114

Table 4-3 shows that the total VOC concentration in the pre-carbon effluent sample from the Building 114 SSDS was 2,329 µg/m^3 in March 2011 and 2,458 µg/m^3 in November 2011. As shown in Table 4-7, based on a flow of 43 cfm in March 2011 and a flow of 40.5 cfm in November 2011, the system was removing CVOCs at a consistent rate of 3.3 lb/year in 2011.

4.3 SSDS Performance Assessment

The Type A, B, and C SSDSs continue to operate at levels consistent with startup testing performance data. Based on the results of the March 2011 sampling event, the carbon efficacy for the Building 114 SSDS was diminished. As indicated in Section 4.1.2.4, the GAC vessels for this system were replaced in May 2011. The post-carbon effluent samples from the Building 21 Type A SSDS and Building 20/25 Type B SSDS indicate breakthrough has occurred. Since the total estimated VOC removal mass from the B21 SSDS is significantly less than one pound per year, carbon efficacy, and the need for replacement GAC vessels for Building 21 SSDS, will be evaluated during the next (March 2012) ICM performance monitoring event. If the post-carbon effluent samples continue to indicate breakthrough, the GAC vessels will be replaced. Based on pre-carbon effluent sample concentrations from the Building 20/25 SSDSs and the presence of CVOCs in the post-carbon effluent samples, the carbon efficacy for this system has diminished and replacement carbon media for the GAC vessels is required. The media in the GAC vessels for this system is scheduled to be replaced during the first quarter 2011.

5. ICM Performance Monitoring - Indoor Air

5.1 Sampling Procedures

Indoor air samples were collected on November 21, 2011. Samples were collected using 6 liter Summa Canisters in accordance with the ICM Work Plan (Malcolm Pirnie 2009). The samples were submitted to Air Toxics LTD, Folsom, California, following chain-of-custody procedures for analysis of VOCs by USEPA Method TO-15. Analytical reporting forms are provided in Appendix B.

5.2 Sampling Results

Indoor air sample results are summarized in Table 5-1. Sample locations and sample results are shown on Figures 5-1 through 5-9. One duplicate sample (IA-B121-1 Duplicate) was collected at the location of IA-B121-1. As shown in Table 5-1, the analytical results of the duplicate sample are consistent with the parent sample results.

6. Summary

The Type A (Building 21 and 114) and Type B (Building 20 and 25) SSDSs were inspected in accordance with the ICM Work Plan and generally performed consistent with startup test results.

Based on total run-time hours, the Building 21 and Building 114 SSDSs operated for approximately 77percent and 90 percent, respectively, of the total available run-time for the year. The Building 21 SSDS required the addition of a knockout tank, make-up air valve, and stack drain to alleviate alarm conditions related to high knockout tank levels and restricted air flow. After the installation of these items, the system has operated continuously. The Building 114 SSDS operated with only a minimal interruption related to the system flow meter. The Building 20 and Building 25 SSDSs operated at approximately 99 percent and 78 percent, respectively, of the total available run-time for the year. No issues were reported with the Building 20 SSDS. The Building 25 SSDS was shut down for approximately two months while the blower was being repaired.

The Type C SSDSs (Buildings 21, 22, 120, 121, and 130) were generally inspected in accordance with the ICM Work Plan, with the exception of the Building 130 system, which has restricted access. The Building 121 system was shut down for repair in January and February 2011 due to a faulty fan motor. The remainder of the Type C SSDSs generally operated without interruption.

Pre- and post-carbon effluent samples were collected from the Type A and B SSDSs in March and November 2011. Based on the November 2011 pre-carbon sample results and SSDS flow measurements, the total annual VOC mass removed from the SSDSs ranged from 0.09 lbs/year from the Building 21 SSDS to 3.3 lbs/year from the Building 114 SSDS. March 2011 post-carbon effluent samples indicated reduced carbon efficacy in the Building 114 SSDS. The GAC vessels were subsequently replaced in April 2011. CVOC breakthrough was detected in the November 2011 samples from the B21 SSDS. However, due to limited concentrations of pre-carbon CVOCs, the carbon efficacy will be re-evaluated during the next ICM performance monitoring event. The B20/25 post-carbon effluent air samples contained low-level CVOCs. The carbon media in the GAC vessels for these systems is scheduled to be replaced during the first quarter 2012.

Indoor air sampling was conducted in accordance with the ICM Work Plan on November 21, 2011.

7. Conclusions

Based on flow and pressure measurements, the SSDSs operated consistent with startup test parameters.

The Building 25 SSDS was the most efficient system, operating near 100 percent of the available run-time in 2011. The Building 21 SSDS was the least efficient due to on-going issues with flow restrictions and high knockout tank levels, which were subsequently repaired. The system operated at approximately 77 percent of the available run-time for 2011.

VOC mass removal in the Type A and B SSDSs ranged from 0.09 lb/year (Building 21) to 3.3 lb/year (Building 114).

8. Recommendations

Based on 2011 Type A and B SSDS operating data, continued O&M in accordance with the ICM Work Plan will provide effective monitoring of the SSDSs.

The ICM Work Plan currently indicates that the Type C SSDSs be inspected on a bi-monthly basis. Based on 2010 and 2011 operating data and the proven performance of the in-line SSDS fans, monthly inspection intervals should be sufficient to confirm proper operation of these systems. Therefore, it is recommended that the inspection interval for the Type C SSDS be increased from bi-monthly to monthly.

Based on a low discharge mass, the efficacy for the Building 21 GAC vessels will be re-evaluated during the next post-carbon effluent sampling event. If continued breakthrough is observed, the GAC vessels will be replaced.

Reference

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Malcolm Pirnie 2008a. *Vapor Intrusion Evaluation Work Plan Addendum, Main Manufacturing Area, Watervliet Arsenal, Watervliet, New York*, January 2008 (supplemented February 8, 2008).

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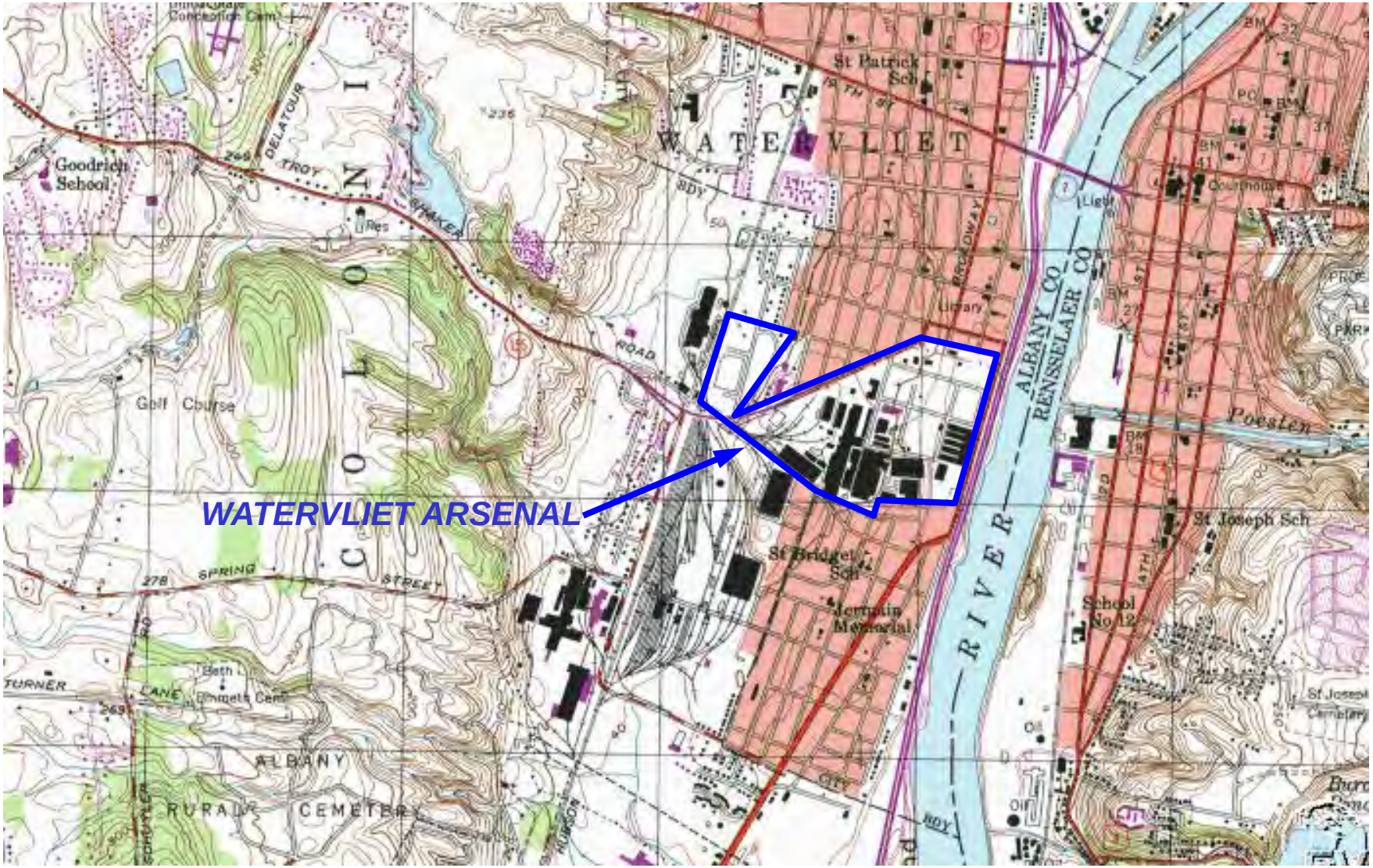


SCALE IN FEET

0 1000 2000 4000

SOURCE: U.S.G.S 7.5 MIN. TROY SOUTH QUADRANGLE

US Army Corps of Engineers
Baltimore District

WATERVLIET ARSENAL
WATERVLIET, NEW YORK

SITE LOCATION

FIGURE 1-1

US Army Corps of Engineers

OPERATION AND MAINTENANCE REPORT
WATERVLIET ARSENAL
WATERVLIET, NEW YORK

SITE MAP

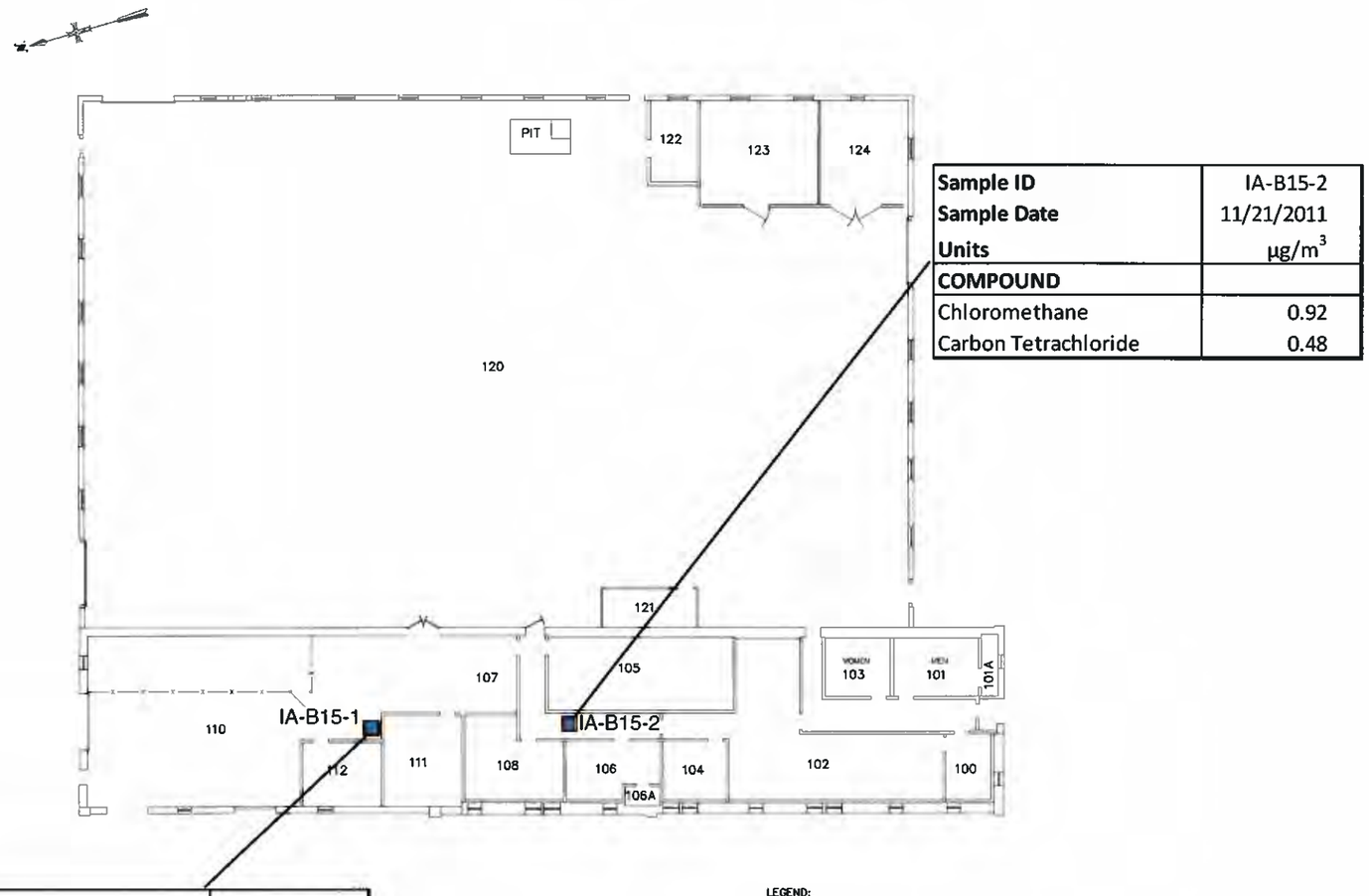
ARCADIS MALCOLM PIRNIE, INC.

JANUARY 2012

FIGURE 1-2

ARCADIS MALCOLM PIRNIE
Infrastructure Water Environment Buildings

Figure 5-1
Indoor Air VOC Concentrations
Building 15
Watervliet Arsenal
Watervliet, New York



Sample ID	IA-B15-2
Sample Date	11/21/2011
Units	µg/m^3
COMPOUND	
Chloromethane	0.92
Carbon Tetrachloride	0.48

Sample ID	IA-B15-1
Sample Date	11/21/2011
Units	µg/m^3
COMPOUND	
Chloromethane	0.86
Carbon Tetrachloride	0.5

LEGEND:
DOOR
WINDOW
INTERIOR WALL
EXTERIOR WALL
STAIRS
HAND RAIL
CASED AREA
COLUMNS

NOT TO SCALE

BUILDING 15
WATERVLIET ARSENAL
WATERVLIET NEW YORK

	Name	Date	Rev	Date	Description
DRAWN	A/A	10/22/12			
CHECKED					
SUBMITTED					

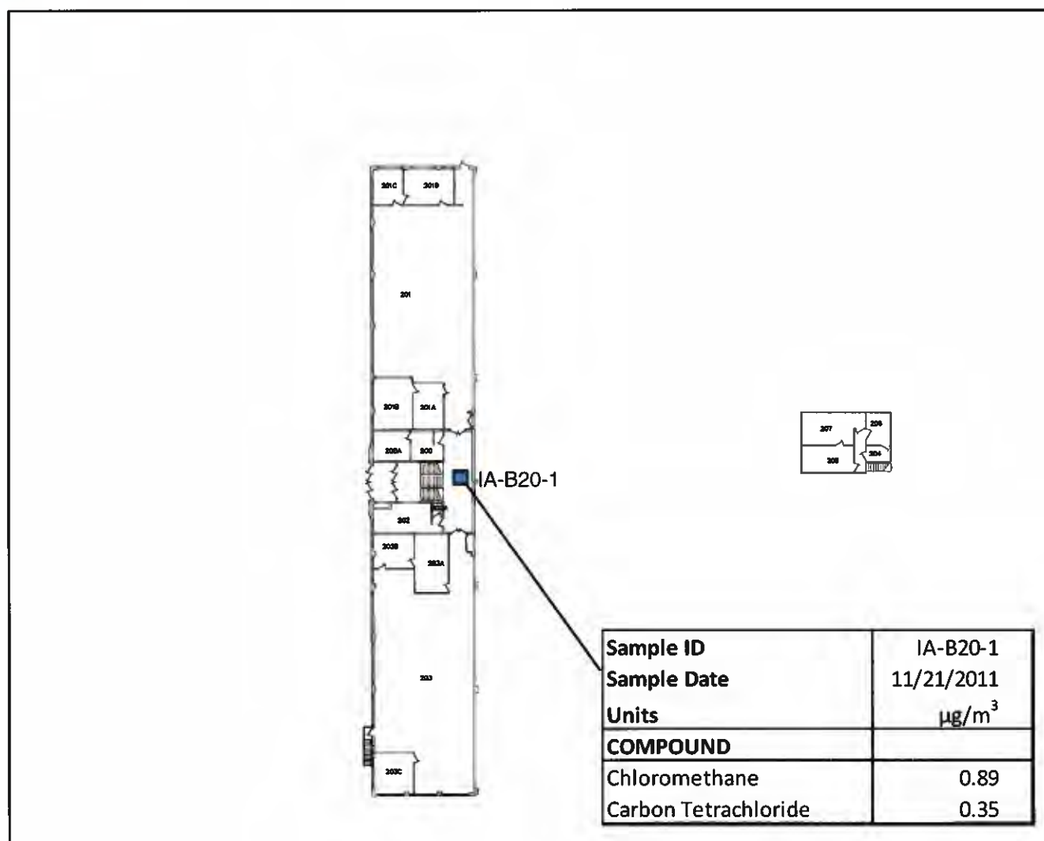
Scale 1/8"=1'-0"
Date: OCTOBER 2012
Drawing Number: 6016-15-1
Sheet: 1 OF 1

02118187.0000

ARCADIS MALCOLM PIRNIE
Infrastructure Water Environment Building

Figure 5-2
Indoor Air VOC Concentrations
Building 20

Watervliet Arsenal
Watervliet, New York



Sample ID	IA-B20-1
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
Chloromethane	0.89
Carbon Tetrachloride	0.35

LEGEND:
DOOR
WINDOW
INTERIOR WALL
EXTERIOR WALL
STAIRS
HAND RAIL
CAGED AREA
COLUMNS

NOT TO SCALE

BUILDING 20 – SECOND FLOOR
WATERVLIET ARSENAL
WATERVLIET, NEW YORK

	Name	Date	Rev	Date	Description
DRAWN	RM				
CHECKED	EAD	8/22/07			
SUBMITTED					

Scale: 1/16"=1'-0"
Date APRIL 2007
Drawing Number: 6017-20-2
Sheet: 2 OF 2

CHIEF ENGINEERING DIVISION
DIRECTOR, ENGINEERING & PROJECTS

ARCADIS MALCOLM PIRNIE
Infrastructure Water Environment Buildings

Figure 5-3
Indoor Air VOC Concentrations
Building 21
Watervliet Arsenal
Watervliet, New York

Sample ID	IA-B21-1
Sample Date	11/21/2011
Units	µg/m^3
COMPOUND	
Chloromethane	0.78
Carbon Tetrachloride	0.43

Sample ID	IA-B21-2
Sample Date	11/21/2011
Units	µg/m^3
COMPOUND	
Chloromethane	0.85
Carbon Tetrachloride	0.52

LEGEND:
DOOR
WINDOW
INTERIOR WALL
EXTERIOR WALL
STAIRS
HAND RAIL
CAGED AREA
COLUMNS

NOT TO SCALE

BUILDING 21
WATERVLIET ARSENAL
WATERVLIET NEW YORK

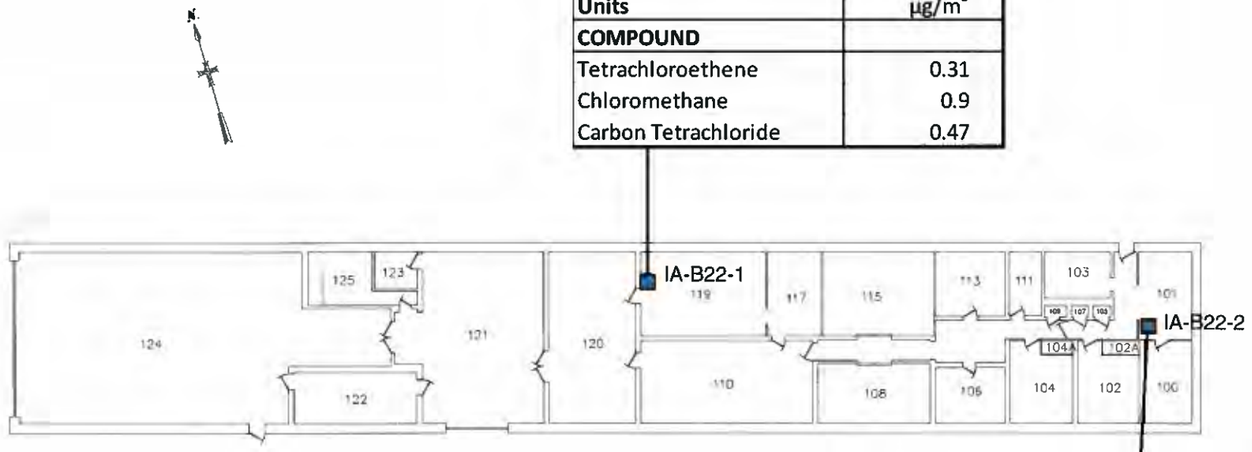
	Name	Date	Re	Description
DRAWN	NL			
CHECKED	GG	6/22/07		
SUBMITTED				

Scale: 1/8"=1'-0
Date: DECEMBER 2007
Drawing Number: 6018-21-1
Sheet: 1 OF 1

ARCADIS MALCOLM PIRNIE
Infrastructure Water Environment Buildings

Figure 5-4
Indoor Air VOC Concentrations
Building 22
Watervliet Arsenal
Watervliet, New York

Sample ID	IA-B22-1
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
Tetrachloroethene	0.31
Chloromethane	0.9
Carbon Tetrachloride	0.47



Sample ID	IA-B22-2
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
Chloromethane	0.82

LEGEND:
DOOR
WINDOW
INTERIOR WALL
EXTERIOR WALL
STAIRS
HAND RAIL
CAGED AREA
COLUMNS

NOT TO SCALE

BUILDING 22 – FIRE STATION
WATERVLIET ARSENAL
WATERVLIET, NEW YORK

	Name	Date	Rev.	Date	Description
DRAWN	NL				
CHECKED	DG	8/22/07			
SUBMITTED					

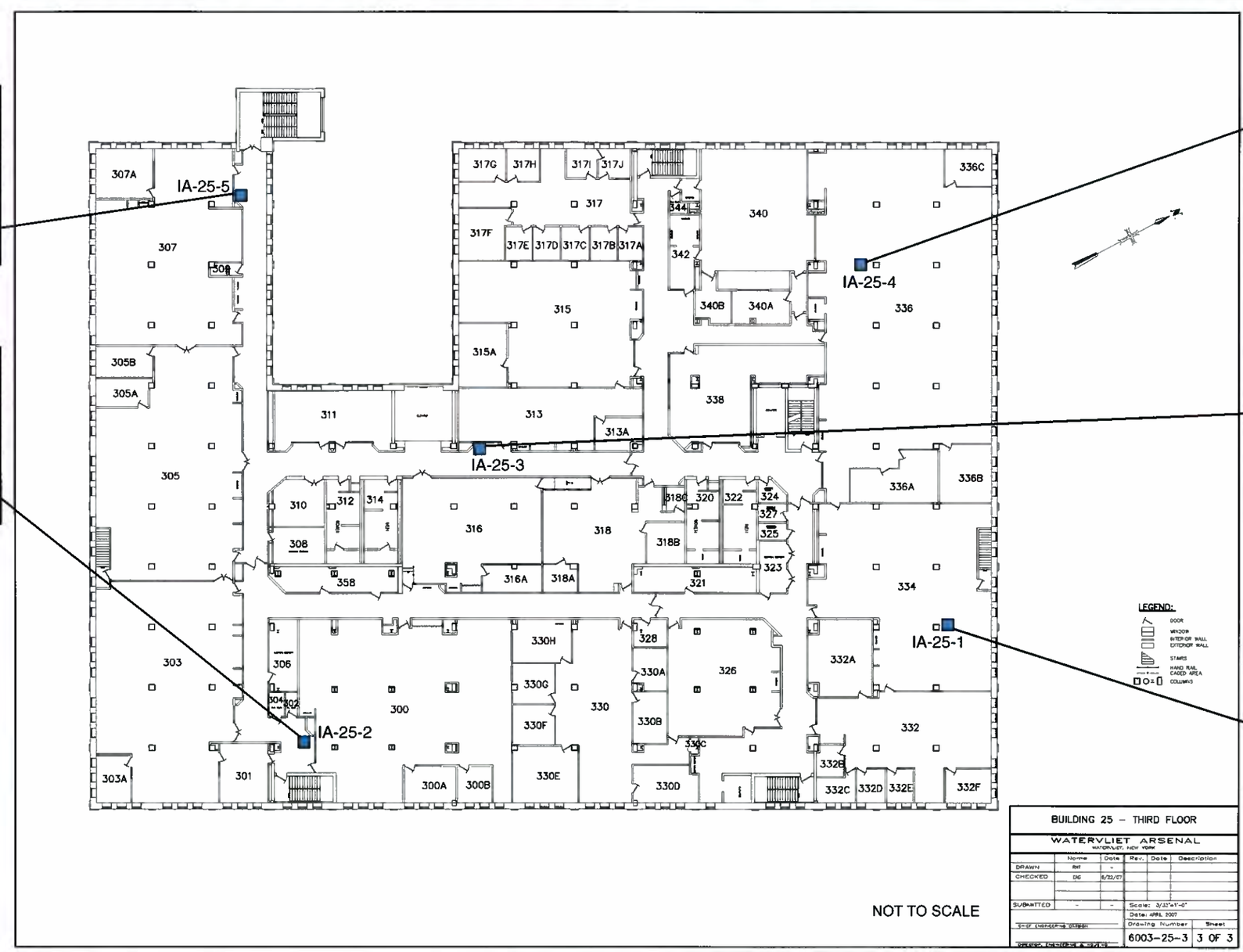
Scale: 1/8"=1'-0
Date: DECEMBER 2007
Drawing Number: 6019–22–1
Sheet: 1 OF 1

ARCADIS MALCOLM PIRNIE
Infrastructure Water Environment Buildings

Figure 5-5
Indoor Air VOC Concentrations
Building 25
Watervliet Arsenal
Watervliet, New York

Sample ID	IA-B25-5
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
Tetrachloroethene	0.43
Chloromethane	0.85
Carbon Tetrachloride	0.46

Sample ID	IA-B25-2
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
Tetrachloroethene	0.33
Chloromethane	0.91
Carbon Tetrachloride	0.47



Sample ID	IA-B25-4
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
Tetrachloroethene	0.32
Chloromethane	0.91
Carbon Tetrachloride	0.5

Sample ID	IA-B25-3
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
Tetrachloroethene	0.47
Chloromethane	0.87
Carbon Tetrachloride	0.49

Sample ID	IA-B25-1
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
Tetrachloroethene	0.31
Chloromethane	0.93
Carbon Tetrachloride	0.44

BUILDING 25 – THIRD FLOOR
WATERVLIET ARSENAL
WATERVLIET, NEW YORK

	Name	Date
DRAWN	RM	-
CHECKED	DG	6/22/07
SUBMITTED	-	-

Rev. | Date | Description

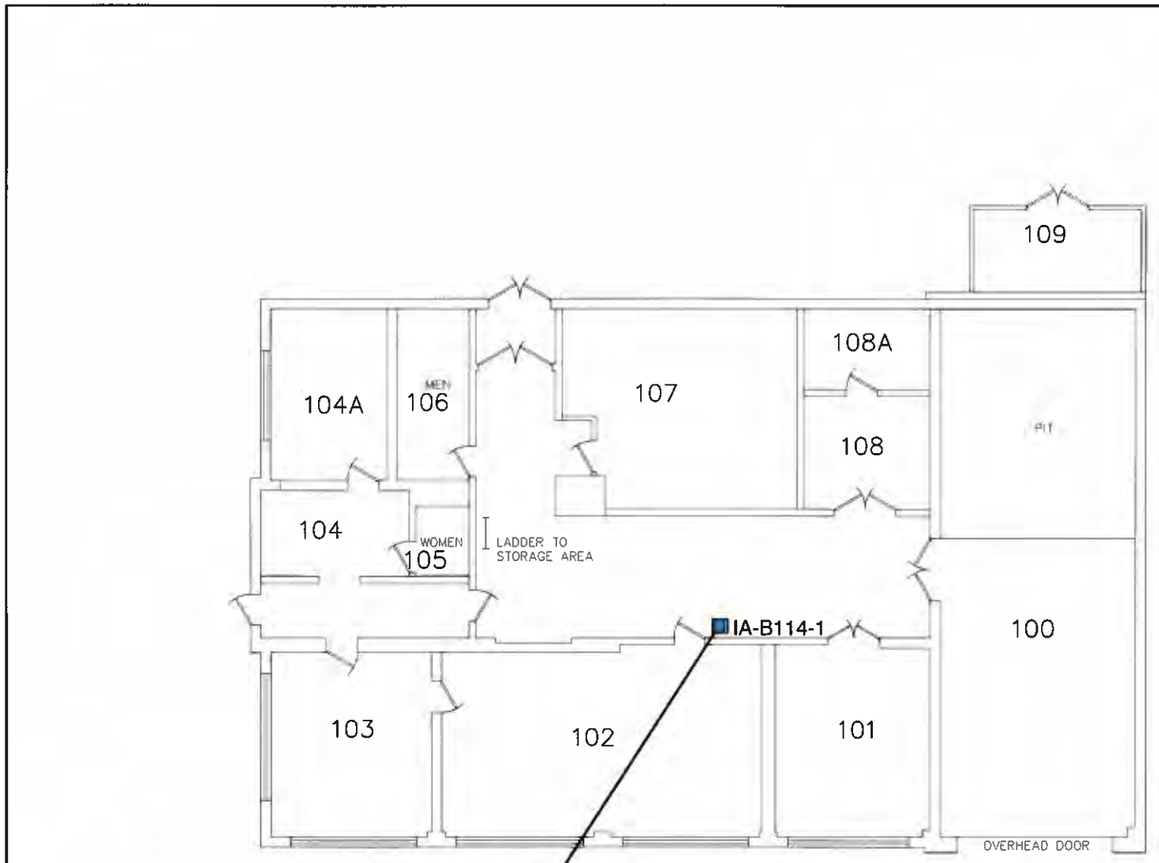
Scale: 3/32"=1'-0"
Date: APRIL 2007
Drawing Number: 6003-25-3
Sheet: 3 OF 3

02118187.0000

ARCADIS MALCOLM PIRNIE
Infrastructure Water Environment Buildings

Figure 5-6
Indoor Air VOC Concentrations
Building 114

Watervliet Arsenal
Watervliet, New York



Sample ID	IA-B114-1
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
1,1,1-Trichloroethane	4.2
Tetrachloroethene	1.2
Chloromethane	0.86
Carbon Tetrachloride	0.54

LEGEND:

DOOR
WINDOW
INTERIOR WALL
EXTERIOR WALL
STAIRS
HAND RAIL
CAGED AREA
COLUMNS

NOT TO SCALE

BUILDING 114
WATERVLIET ARSENAL
WATERVLIET, NEW YORK

	Name	Date	Rev.	Date	Description
DRAWN	RMT				
CHECKED	CAS	4/22/07			
SUBMITTED					

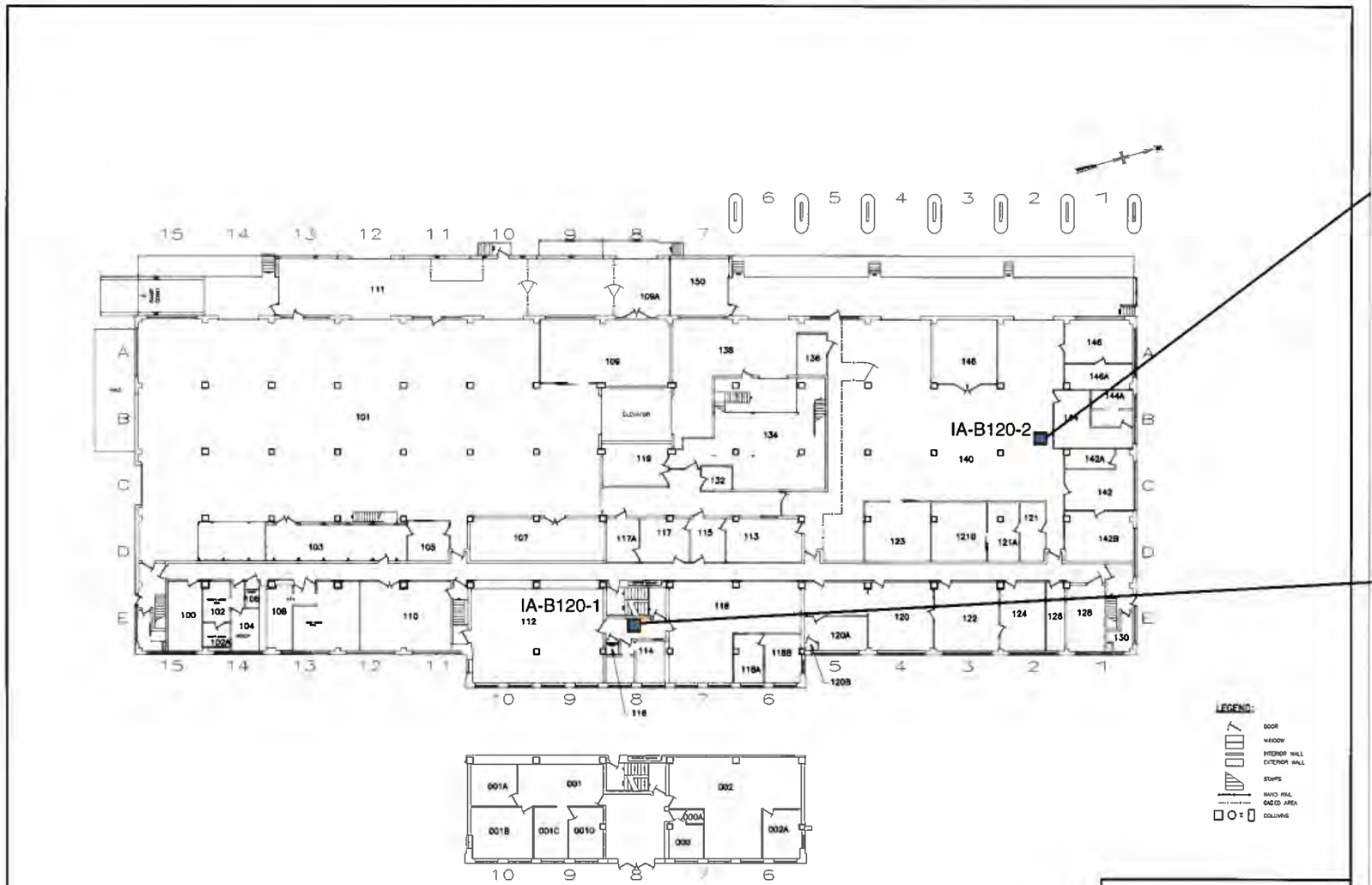
Scale: 1/4"=1'-0"
Date: APRIL 2007
Drawing Number: 6010-114
Sheet: 1 OF 1

02118187 0000

ARCADIS MALCOLM PIRNIE
Infrastructure Water Environment Buildings

Figure 5-7
Indoor Air VOC Concentrations
Building 120

Watervliet Arsenal
Watervliet, New York



Sample ID	IA-B120-2
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
1,1,1-Trichloroethane	0.75
Trichloroethene	0.42
Tetrachloroethene	0.25
Chloromethane	0.83
Carbon Tetrachloride	0.47

Sample ID	IA-B120-1
Sample Date	11/21/2011
Units	µg/m³
COMPOUND	
1,1,1-Trichloroethane	0.21
Chloromethane	0.86
Carbon Tetrachloride	0.49

NOT TO SCALE

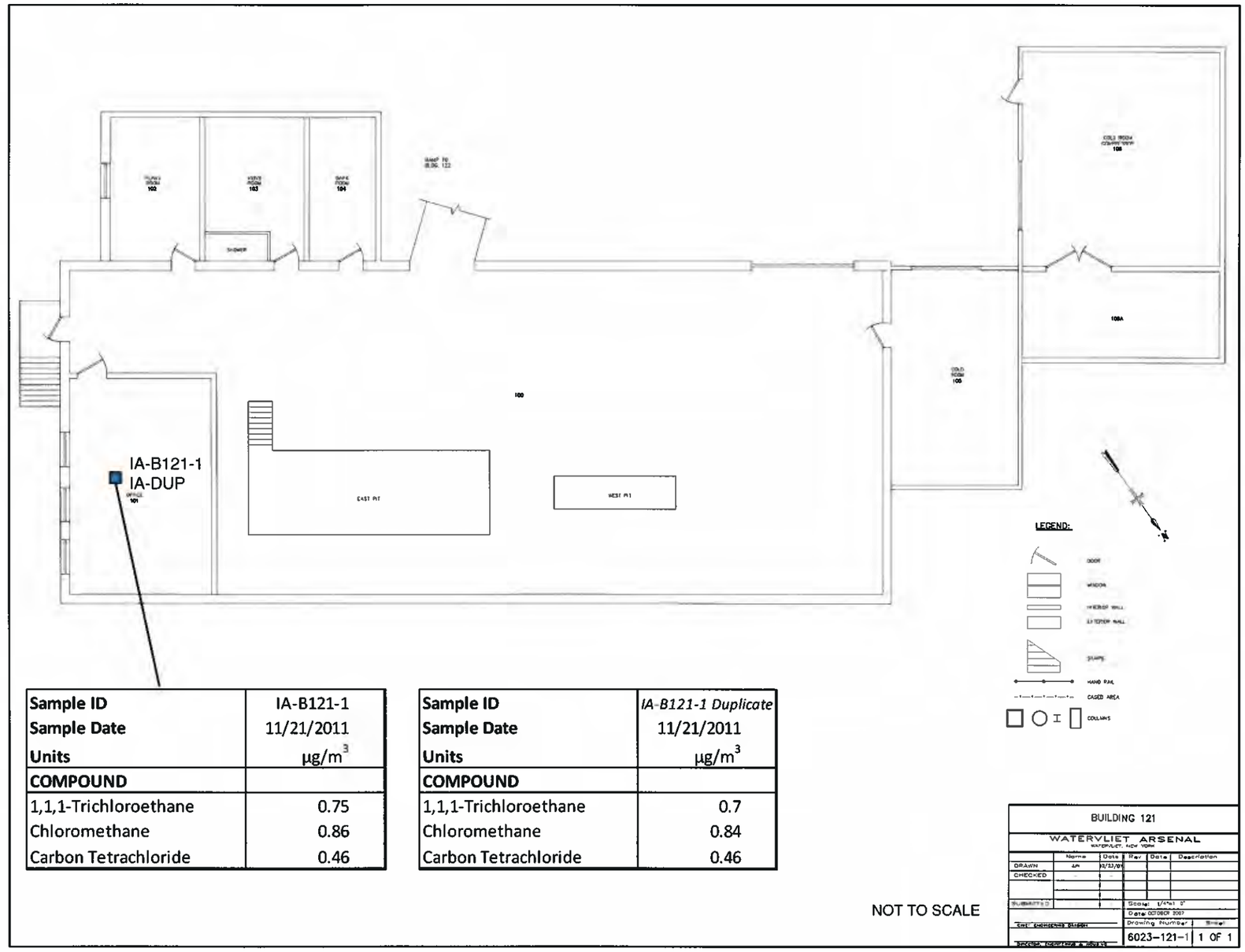
BUILDING 120 – FIRST FLOOR
WATERVLIET ARSENAL
WATERVLIET, NEW YORK

	Name	Date	Rev.	Date	Description
DRAWN	RAT				
CHECKED	DAS	6/23/11			
SUBMITTED			Scale: SCALE 1/16"=1'-0"		
			Date: APRIL 2007		
			Drawing Number		Sheet
			6012-120-1		1 OF 3

02118187.0000

ARCADIS MALCOLM PIRNIE
Infrastructure Water Environment Buildings

Figure 5-8
Indoor Air VOC Concentrations
Building 121
Watervliet Arsenal
Watervliet, New York



Sample ID	IA-B121-1
Sample Date	11/21/2011
Units	µg/m^3
COMPOUND	
1,1,1-Trichloroethane	0.75
Chloromethane	0.86
Carbon Tetrachloride	0.46

Sample ID	*IA-B121-1 Duplicate*
Sample Date	11/21/2011
Units	µg/m^3
COMPOUND	
1,1,1-Trichloroethane	0.7
Chloromethane	0.84
Carbon Tetrachloride	0.46

NOT TO SCALE

BUILDING 121
WATERVLIET ARSENAL
WATERVLIET, NEW YORK

	Name	Date	Rev	Date	Description
DRAWN	AM	10/31/11			
CHECKED	-	-			
SUBMITTED					

Scale: 1/4"=1'
Date: OCTOBER 2007
Drawing Number: 6023-121-1
Sheet: 1 OF 1

ARCADIS MALCOLM PIRNIE
Infrastructure Water Environment Buildings

Figure 5-9
Indoor Air VOC Concentrations
Building 130
Watervliet Arsenal
Watervliet, New York

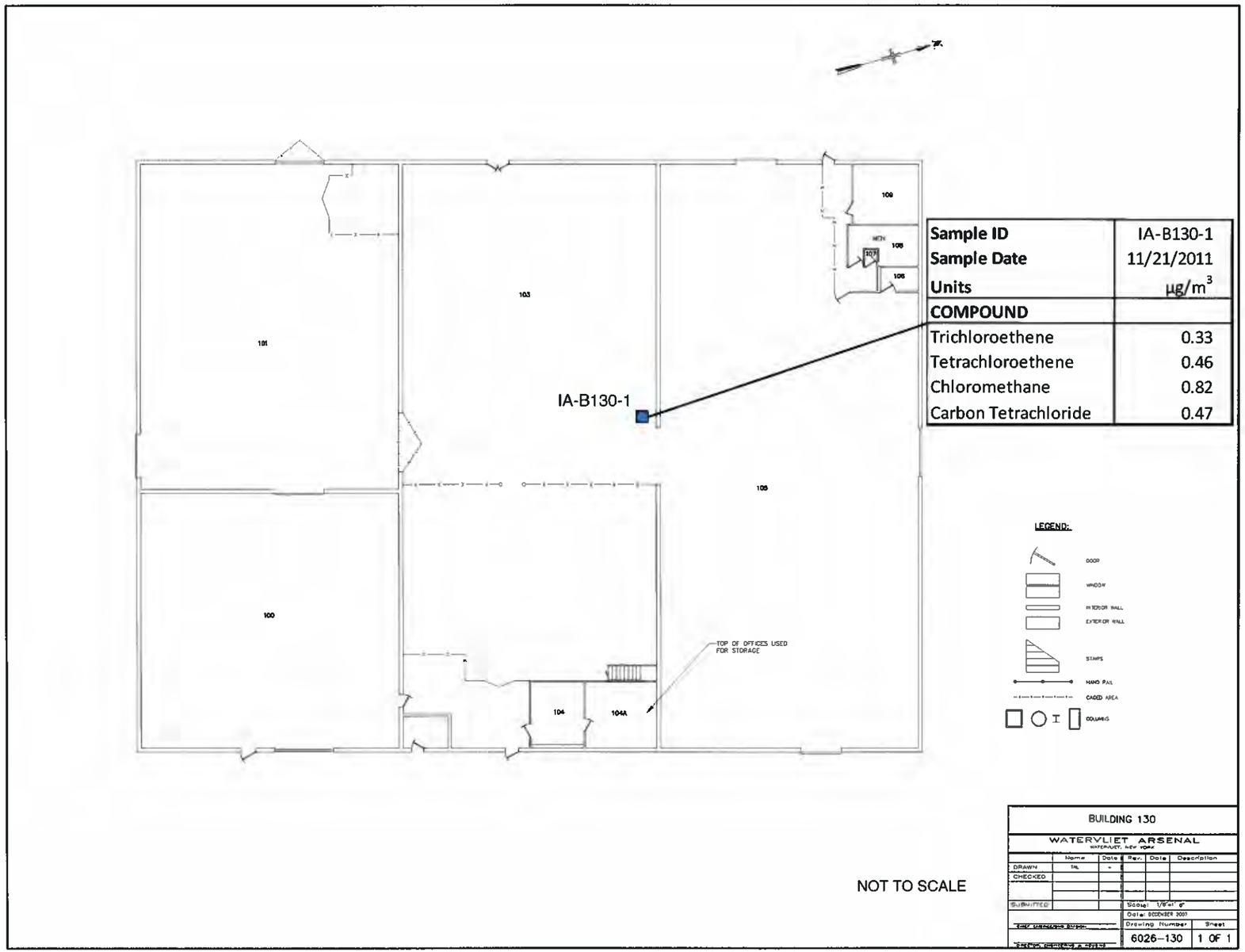


Table 3-1
Summary of 2011 SSDS Operational Parameters - Building 20
Watervliet Arsenal
Watervliet, New York

Date	Total Flow (cfm)	Vacuum (inches H_2O)	Run Time (hours)	Alarm	Pre-carbon PID (ppm)	Post-carbon PID (ppm)
1/27/2011	346	-65	3321	No	0	0
2/24/2011	349	-65	3987	No	<1	0
3/30/2011	349	-65	4801	No	0	0
4/28/2011	343	-70	5496	No	0	0
5/12/2011	353	-68	5823	No	NM	NM
6/23/2011	349	-66	6830	No	NM	NM
7/13/2011	329	-64	7306	No	0	0
8/24/2011	349	-70	8290	No	0	0
9/27/2011	336	-68	9106	No	NM	NM
10/25/2011	353	-66	9770	No	NM	NM
11/17/2011	349	-66	10321	No	0	0
12/29/2011	356	-68	11323	No	0	0

NM - Not Measured

Table 3-2
Summary of 2011 SSDS Operational Parameters - Building 21
Watervliet Arsenal
Watervliet, New York

Date	Extraction Point	System On?	Total Flow (cfm)	Vacuum (inches H_2O)	Run Time (hours)	Alarm
1/27/2011	EW-1	No	NM	NM	NM	N/A
	EW-2	Yes	8	-3	N/A	N/A
2/24/2011	EW-1	No	NM	NM	NM	N/A
	EW-2	Yes	NM	NM	N/A	N/A
3/30/2011	EW-1	No	NM	NM	NM	N/A
	EW-2	Yes	NM	NM	N/A	N/A
4/14/2011	EW-1	Yes	48	-19	2849	Yes- High Press.
	EW-2	NM	NM	NM	N/A	N/A
4/28/2011	EW-1	Yes	67	-25	3181	Flow high-high
	EW-2	Yes	NM	NM	N/A	N/A
5/12/2011	EW-1	Yes	30	-30	3510	Blower influent low
	EW-2	NM	NM	NM	N/A	N/A
6/23/2011	EW-1	Yes	35	-25	4517	Blower influent high
	EW-2	Yes	NM	NM	N/A	N/A
7/13/2011	EW-1	Yes	57	-25	4996	Flow high-high
	EW-2	?	NM	NM	N/A	N/A
8/24/2011	EW-1	Yes	45	-15	5994	Blower fail to stop
	EW-2	Yes	8	-3	N/A	N/A
9/27/2011	EW-1	Yes	38	-14	6803	KO level high, flow low
	EW-2	Yes	NM	NM	N/A	N/A
10/25/2011	EW-1	Yes	NM	-16	7471	No
	EW-2	Yes	NM	-3	N/A	N/A
11/17/2011	EW-1	Yes	26	-15	8021	No
	EW-2	Yes	NM	-3	N/A	N/A
12/29/2011	EW-1	Yes	19.7	-15	9023	No
	EW-2	Yes	NM	NM	N/A	N/A

NM - Not Measured

Table 3-3
Summary of 2011 SSDS Operational Parameters - Building 22
Watervliet Arsenal
Watervliet, New York

Date	Extraction Point	System On?	Total Flow (cfm)	Vacuum (inches H_2O)
1/27/2011	EW-1	Yes	16	-2
	EW-2	Yes	50	NM
2/24/2011	EW-1	Yes	13	-2.2
	EW-2	Yes	43	NM
3/30/2011	EW-1	Yes	10.5	-2
	EW-2	Yes	48	-2
4/28/2011	EW-1	Yes	NM	NM
	EW-2	Yes	NM	-2.5
5/12/2011	EW-1	NM	NM	NM
	EW-2	NM	NM	NM
6/23/2011	EW-1	Yes	15	-2.5
	EW-2	Yes	53	-1.5
7/13/2011	EW-1	Yes	NM	NM
	EW-2	Yes	NM	-1.5
8/24/2011	EW-1	Yes	NM	NM
	EW-2	Yes	NM	-1.5
9/27/2011	EW-1	Yes	20	-2.2
	EW-2	Yes	63	-1.5
10/25/2011	EW-1	Yes	NM	NM
	EW-2	Yes	NM	-2
11/17/2011	EW-1	Yes	9	-2.1
	EW-2	Yes	57	-1.5
12/29/2011	EW-1	Yes	NM	NM
	EW-2	Yes	NM	-2

NM - Not Measured

Table 3-4
Summary of 2011 SSDS Operational Parameters - Building 25
Watervliet Arsenal
Watervliet, New York

Date	Total Flow (cfm)	Vacuum (inches H_2O)	Run Time (hours)	Alarm	Pre-carbon PID (ppm)	Post-carbon PID (ppm)
1/27/2011	483	-18	4154	No	0	0
2/24/2011	477	-18	4820	No	18	0
3/30/2011	480	-20	5634	No	0	0
4/28/2011	576	-19	6329	No	0	0
5/12/2011	NM	NM	NM	NM	NM	NM
6/23/2011	NM	NM	NM	NM	NM	NM
7/13/2011	477	-16	6446	No	0.3	0
8/24/2011	551	-30	7429	No	0	0
9/27/2011	460	-20	8247	No	NM	NM
10/25/2011	463	-22	8910	No	NM	NM
11/17/2011	460	-22	9461	No	0	0
12/29/2011	463	-32	10463	No	0	0

NM - Not Measured

Table 3-5
Summary of 2011 SSDS Operational Parameters - Building 114
Watervliet Arsenal
Watervliet, New York

Date	Total Flow (cfm)	Vacuum (inches H_2O)	Run Time (hours)	Alarm	Pre-carbon PID (ppm)	Post-carbon PID (ppm)
1/27/2011	78	-13	1352	No	3	0
2/24/2011	80	-13	2024	No	1	0
3/30/2011	NM	NM	NM	NM	0	0
4/28/2011	78	-14	3532	No	4	0
5/12/2011	78	-12	3859	No	NM	NM
6/23/2011	77	-14	4867	No	NM	NM
7/13/2011	76	-13	5347	No	0.2	0
8/24/2011	78	-14	5723	Blower failed to stop	0.5	0
9/27/2011	77	-14	6536	No	NM	NM
10/25/2011	75	-15	7204	No	NM	NM
11/17/2011	75	-13	7752	No	0.2	0
12/29/2011	72	-12	8623	High KO level	NM	NM

NM - Not Measured

Table 3-6
Summary of 2011 SSDS Operational Parameters - Building 120
Watervliet Arsenal
Watervliet, New York

Date	Extraction Point	System On?	Flow (cfm)	Vacuum (inches H_2O)
1/27/2011	EW-1	Yes	28	-1.5
	EW-2		34	-2
2/24/2011	EW-1	Yes	20	-1.4
	EW-2		31	-1.5
3/30/2011	EW-1	Yes	19.8	-1.8
	EW-2		32.4	-1.8
4/28/2011	EW-1	Yes	23	-1.8
	EW-2		32	-1.8
5/12/2011	EW-1	Yes	NM	NM
	EW-2		NM	NM
6/23/2011	EW-1	Yes	37	-1.8
	EW-2		32	-1.8
7/13/2011	EW-1	Yes	38	-1.8
	EW-2		34	-1.8
8/24/2011	EW-1	Yes	37	-2
	EW-2		33	-1.8
9/27/2011	EW-1	Yes	36	-2
	EW-2		34	-1.8
10/25/2011	EW-1	Yes	NM	-2
	EW-2		NM	-2
11/17/2011	EW-1	Yes	17.3	-2
	EW-2		32.2	-2
12/29/2011	EW-1	Yes	15.9	-2
	EW-2		31.2	-2

NM - Not Measured

Table 3-7
Summary of 2011 SSDS Operational Parameters - Building 121
Watervliet Arsenal
Watervliet, New York

Date	System On?	Total Flow (cfm)	Vacuum (inches H_2O)
1/27/2011	No	-	-
2/24/2011	Yes	50	NM
3/30/2011	Yes	54.5	-2
4/28/2011	Yes	NM	NM
5/31/2011	Yes	59	-1.2
6/23/2011	Yes	51	-1.5
7/13/2011	Yes	51	-1.2
8/24/2011	Yes	53	-1.2
9/27/2011	Yes	53	-1.5
10/25/2011	?	NM	NM
11/17/2011	Yes	24.6	-1.5
12/29/2011	Yes	47.9	-1.5

NM - Not Measured

Table 3-8
Summary of 2011 SSDS Operational Parameters - Building 130
Watervliet Arsenal
Watervliet, New York

Date	System On?	Total Flow (cfm)	Vacuum (inches H_2O)
1/27/2011	Yes	NM	NM
2/24/2011	Yes	NM	NM
3/30/2011	Yes	NM	NM
4/28/2011	Yes	NM	NM
5/12/2011	Yes	60	-1.8
6/23/2011	Yes	NM	NM
7/13/2011	Yes	NM	NM
8/24/2011	Yes	NM	NM
9/27/2011	Yes	NM	NM
10/25/2011	Yes	NM	NM
11/17/2011	Yes	NM	NM
12/29/2011	Yes	NM	NM

NM - Not Measured

Table 4-1
SSDS Effluent Sample Results Summary
Buildings 20 and 25
Watervliet Arsenal
Watervliet, New York

Building	20			25		
Sample ID	B20-Pre-carbon Effluent	B20-Pre-carbon Effluent	B20-Pre-carbon Effluent	B25-Pre-carbon Effluent	B25-Pre-carbon Effluent	B25-Pre-carbon Effluent
Sample Type						
Date	9/10/2010	3/30/2011	11/17/2011	8/12/2010	3/30/2011	11/17/2011
Units	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3
VOCs (TO-15)						
Chloromethane	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	**23**	**23**	**4.2**
1,1,1-Trichloroethane	**6.4**	ND	ND	**100**	**17**	**16**
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	**250**	**59**	**78**	**6200**	**630**	**620**
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND
Tetrachloroethene	**54**	**16**	**21**	**58**	**20**	**24**
Chlorobenzene	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND
Total CVOCs	**310.4**	**75**	**99**	**6381**	**690**	**664**

Notes:
ND - Compound not dectected
ug/m^3 - micrograms per cubic meter

Table 4-1
SSDS Effluent Sample Results Summary
Buildings 20 and 25
Watervliet Arsenal
Watervliet, New York

Building	**20/25**		
Sample ID	**B25-Post-carbon Effluent**	**B20/25-Post-C Effluent**	**B20/25-Post-C Effluent**
Sample Type			
Date	**8/12/2010**	**3/30/2011**	**11/17/2011**
Units	**ug/m^3**	**ug/m^3**	**ug/m^3**
VOCs (TO-15)			
Chloromethane	ND	ND	ND
Vinyl Chloride	ND	ND	ND
Chloroethane	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	**5.4**
1,1,1-Trichloroethane	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND
Trichloroethene	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND
Tetrachloroethene	ND	ND	ND
Chlorobenzene	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND

Total CVOCs

Notes:
ND - Compound not dectected
ug/m^3 - micrograms per cubic meter

Table 4-2
SSDS Effluent Sample Results Summary
Building 21
Watervliet Arsenal
Watervliet, New York

Building	**21**			
Sample ID	**B21-Pre-carbon Effluent**	**B21-Pre-carbon Effluent**	**B21-Post-carbon Effluent**	**B21-Post-carbon Effluent**
Sample Type				
Date	**8/12/2010**	**11/17/2011**	**8/12/2010**	**11/17/2011**
Units	**ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
VOCs (TO-15)				
Chloromethane	ND	ND	**11**	ND
Vinyl Chloride	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND
cis-1,2-Dichloroethene	**44**	**17**	ND	**8.2**
1,1,1-Trichloroethane	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND
Trichloroethene	**270**	**72**	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND
Tetrachloroethene	**63**	**14**	ND	ND
Chlorobenzene	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
Total CVOCs	**377**	**103**		

Notes:
ND - Compound not dectected
ug/m^3 - micrograms per cubic meter

Table 4-3
SSDS Effluent Sample Results Summary
Buildings 114
Watervliet Arsenal
Watervliet, New York

Building	**114**					
Sample ID	**B114-Pre-carbon Effluent**	**B114-Pre-carbon Effluent**	**B114-Pre-carbon Effluent**	**B114-Post-carbon Effluent**	**B114-Post-carbon Effluent**	**B114-Post-carbon Effluent**
Sample Type						
Date	**8/12/2010**	**3/30/2011**	**11/17/2011**	**8/12/2010**	**3/30/2011**	**11/17/2011**
Units	**ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**	**ug/m^3**
VOCs (TO-15)						
Chloromethane	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	**49**	**38**	ND	**6.9**	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	**6**	**580**	**620**	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND
Tetrachloroethene	**7.1**	**1700**	**1800**	**6.6**	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND
Total CVOCs	**13.1**	**2,329**	**2,458**			

Notes:
ND - Compound not dectected
ug/m^3 - micrograms per cubic meter

Table 4-4
VOC Mass Removal Summary - Building 20
Watervliet Arsenal
Watervliet, New York

Building 20 Flow Rates (cfm)

Date **Extraction Well**	**9/10/2010**	**3/30/2011**	**11/17/2011**
EW-1	185	177	160
EW-2	85	117	87
EW-3	84	90	89
Flow Rate for Mass Removal Calcuation*	**118**	**128**	**112**

Building 20 Mass Removal (lb/year)**

Date **SSDS Flow Rate (cfm)**	**9/10/2010** **118**	**3/30/2011** **128**	**11/17/2011** **112**
Chloromethane	ND	ND	ND
Vinyl Chloride	ND	ND	ND
Chloroethane	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND
1,1,1-Trichloroethane	**0.025**	ND	ND
Carbon Tetrachloride	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND
Trichloroethene	**0.97**	**0.25**	**0.29**
1,1,2-Trichloroethane	ND	ND	ND
Tetrachloroethene	**0.21**	**0.07**	**0.08**
Chlorobenzene	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
Total CVOC Mass Removal	**1.20**	**0.31**	**0.36**

Notes:
* Per NYSDEC, calculated as sum of flow rates divided by the number of extraction wells
** Calculated based on pre-carbon effluent concentrations
SSDS - sub-slab depressurization system
ND - compound not detected
ug/m^3 - micrograms per cubic meter
lb/year- pounds per year
cfm - cubic feet per minute

Conversion Factors:
2.2 E-09 lb/ug
0.0283 m^3/ft^3
525,600 min/year

Table 4-5
VOC Mass Removal Summary - Building 21
Watervliet Arsenal
Watervliet, New York

Building 21 Flow Rates (cfm)

Date **Extraction Well**	**8/12/2010**	**11/17/2011**
EW-1	43	26
Flow Rate for Mass Removal Calcuation*	**43**	**26**

Building 21 Mass Removal (lb/year)**

Date **SSDS Flow Rate (cfm)**	**8/12/2010** **43**	**11/17/2011** **26**
Chloromethane	ND	ND
Vinyl Chloride	ND	ND
Chloroethane	ND	ND
1,1-Dichloroethene	ND	ND
trans-1,2-Dichloroethene	ND	ND
1,1-Dichloroethane	ND	ND
cis-1,2-Dichloroethene	**0.062**	**0.014**
1,1,1-Trichloroethane	ND	ND
Carbon Tetrachloride	ND	ND
1,2-Dichloroethane	ND	ND
Trichloroethene	**0.380**	**0.061**
1,1,2-Trichloroethane	ND	ND
Tetrachloroethene	**0.089**	**0.012**
Chlorobenzene	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND
Total CVOC Mass Removal	**0.53**	**0.09**

Notes:
* Per NYSDEC, calculated as sum of flow rates divided by the number of extraction wells
** Calculated based on pre-carbon effluent concentrations
SSDS - sub-slab depressurization system
ND - compound not detected
ug/m^3 - micrograms per cubic meter
lb/year- pounds per year
cfm - cubic feet per minute

Conversion Factors:
2.2 E-09 lb/ug
0.0283 m^3/ft^3
525,600 min/year

Table 4-6
VOC Mass Removal Summary - Building 25
Watervliet Arsenal
Watervliet, New York

Buillding 25 Flow Rates (cfm)

Date **Extraction Well**	**8/12/2010**	**3/30/2011**	**11/17/2011**
EW-1	162	196	222
EW-2	117	125	86
EW-3	115	56	21
EW-4	148	177	186
Flow Rate for Mass Removal Calcuation*	**136**	**139**	**129**

Building 25 Mass Removal (lb/year)**

Date **SSDS Flow Rate (cfm)**	**8/12/2010** **136**	**3/30/2011** **139**	**11/17/2011** **129**
Chloromethane	ND	ND	ND
Vinyl Chloride	ND	ND	ND
Chloroethane	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
cis-1,2-Dichloroethene	**0.1**	**0.1**	**0.02**
1,1,1-Trichloroethane	**0.4**	**0.1**	**0.1**
Carbon Tetrachloride	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND
Trichloroethene	**27.5**	**2.9**	**2.6**
1,1,2-Trichloroethane	ND	ND	ND
Tetrachloroethene	**0.3**	**0.1**	**0.1**
Chlorobenzene	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
Total CVOC Mass Removal	**28.3**	**3.1**	**2.8**

Notes:
* Per NYSDEC, calculated as sum of flow rates divided by the number of extraction wells
** Calculated based on pre-carbon effluent concentrations
SSDS - sub-slab depressurization system
ND - compound not detected
ug/m^3 - micrograms per cubic meter
lb/year- pounds per year
cfm - cubic feet per minute

Conversion Factors:
2.2 E-09 lb/ug
0.0283 m^3/ft^3
525,600 min/year

Table 4-7
VOC Mass Removal Summary - Building 114
Watervliet Arsenal
Watervliet, New York

Building 114 Flow Rates (cfm)

Date **Extraction Well**	**8/12/2010**	**3/30/2011*** **	**11/17/2011**
EW-1	69	64	58
EW-2	21	22	23
Flow Rate for Mass Removal Calcuation*	**45**	**43**	**40.5**

Building 114 Mass Removal (lb/year)**

Date **SSDS Flow Rate (cfm)**	**8/12/2010** **45**	**3/30/2011** **43**	**11/17/2011** **40.5**
Chloromethane	ND	ND	ND
Vinyl Chloride	ND	ND	ND
Chloroethane	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
cis-1,2-Dichloroethene	ND	**0.069**	**0.050**
1,1,1-Trichloroethane	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND
Trichloroethene	**0.009**	**0.816**	**0.822**
1,1,2-Trichloroethane	ND	ND	ND
Tetrachloroethene	**0.010**	**2.39**	**2.39**
Chlorobenzene	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
Total CVOC Mass Removal	**0.02**	**3.3**	**3.3**

Notes:
* Per NYSDEC, calculated as sum of flow rates divided by the number of extraction wells
** Calculated based on pre-carbon effluent concentrations
*** No access to extraction wells - flow rates from 2/24/2011 site inspection.
SSDS - sub-slab depressurization system
ND - compound not detected
ug/m^3 - micrograms per cubic meter
lb/year- pounds per year
cfm - cubic feet per minute

Conversion Factors:
2.2 E-09 lb/ug
0.0283 m^3/ft^3
525,600 min/year

Table 5-1
Summary of Indoor Air Sampling
2010 - 2011 Vapor Intrusion
Performance Monitoring
Watervliet Arsenal
Watervliet, New York

Building	**Building 25**					
Sample ID	IA-B25-1	IA-B25-1	IA-B25-2	IA-B25-2	IA-B25-3	IA-B25-3
Sample Date	3/31/2010	11/21/2011	3/31/2010	11/21/2011	3/31/2010	11/21/2011
Dilution	2.06	1.68	1.79	1.68	1.68	1.75
Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
COMPOUND						
Vinyl Chloride	0.053 U	0.043 U	0.046 U	0.043 U	0.043 U	0.045 U
1,1-Dichloroethene	0.082 U	0.067 U	0.071 U	0.067 U	0.067 U	0.069 U
1,1-Dichloroethane	0.17 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
cis-1,2-Dichloroethene	0.3	0.13 U	0.14 U	0.13 U	0.13 U	0.14 U
1,1,1-Trichloroethane	0.22 U	0.18 U	0.2 U	0.18 U	0.18 U	0.19 U
1,2-Dichloroethane	0.17 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Trichloroethene	0.22 U	0.18 U	0.25	0.18 U	0.22	0.19 U
1,1,2-Trichloroethane	0.22 U	0.18 U	0.2 U	0.18 U	0.18 U	0.19 U
Tetrachloroethene	0.28 U	0.31	0.24 U	0.33	0.24	0.47
1,1,2,2-Tetrachloroethane	0.28 U	0.23 U	0.24 U	0.23 U	0.23 U	0.24 U
trans-1,2-Dichloroethene	0.82 U	0.67 U	0.71 U	0.67 U	0.67 U	0.69 U
Chloromethane	1	0.93	1.2	0.91	1.1	0.87
Chloroethane	0.27 U	0.22 U	0.24 U	0.22 U	0.22 U	0.23 U
Chlorobenzene	0.19 U	0.15 U	0.16 U	0.15 U	0.15 U	0.16 U
Carbon Tetrachloride	0.42	0.44	0.44	0.47	0.43	0.49

Notes:

ug/m3 - micrograms per cubic meter

U - not detected at indicated concentration

Table 5-1
Summary of Indoor Air Sampling
2010 - 2011 Vapor Intrusion
Performance Monitoring
Watervliet Arsenal
Watervliet, New York

Building	**Building 25**				**Building 20**	
Sample ID	IA-B25-4	IA-B25-4	IA-B25-5	IA-B25-5	IA-B20-1	IA-B20-1
Sample Date	3/31/2010	11/21/2011	3/31/2010	11/21/2011	3/31/2010	11/21/2011
Dilution	1.79	1.75	1.79	1.79	1.75	1.68
Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
COMPOUND						
Vinyl Chloride	0.046 U	0.045 U	0.046 U	0.046 U	0.045 U	0.043 U
1,1-Dichloroethene	0.071 U	0.069 U	0.071 U	0.071 U	0.069 U	0.067 U
1,1-Dichloroethane	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
cis-1,2-Dichloroethene	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.13 U
1,1,1-Trichloroethane	0.2 U	0.19 U	0.2 U	0.2 U	0.19 U	0.18 U
1,2-Dichloroethane	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Trichloroethene	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.18 U
1,1,2-Trichloroethane	0.2 U	0.19 U	0.2 U	0.2 U	0.19 U	0.18 U
Tetrachloroethene	0.24 U	0.32	0.24 U	0.43	0.24 U	0.23 U
1,1,2,2-Tetrachloroethane	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.23 U
trans-1,2-Dichloroethene	0.71 U	0.69 U	0.71 U	0.71 U	0.69 U	0.67 U
Chloromethane	1.2	0.91	1	0.85	1.1	0.89
Chloroethane	0.24 U	0.23 U	0.24 U	0.24 U	0.23 U	0.22 U
Chlorobenzene	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.15 U
Carbon Tetrachloride	0.45	0.5	0.46	0.46	0.41	0.35

Notes:

ug/m3 - micrograms per cubic meter

U - not detected at indicated concentration

Table 5-1
Summary of Indoor Air Sampling
2010 - 2011 Vapor Intrusion
Performance Monitoring
Watervliet Arsenal
Watervliet, New York

Building	**Building 22**			
Sample ID	IA-B22-1	IA-B22-1	IA-B22-2	IA-B22-2
Sample Date	3/31/2010	11/21/2011	3/31/2010	11/21/2011
Dilution	1.75	1.68	1.75	1.71
Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3
COMPOUND				
Vinyl Chloride	0.3	0.043 U	0.045 U	0.044 U
1,1-Dichloroethene	0.069 U	0.067 U	0.069 U	0.068 U
1,1-Dichloroethane	0.14 U	0.14 U	0.14 U	0.14 U
cis-1,2-Dichloroethene	1.1	0.13 U	0.14 U	0.14 U
1,1,1-Trichloroethane	0.19 U	0.18 U	0.33	0.19 U
1,2-Dichloroethane	0.14 U	0.14 U	0.14 U	0.14 U
Trichloroethene	0.19 U	0.18 U	0.19 U	0.18 U
1,1,2-Trichloroethane	0.19 U	0.18 U	0.19 U	0.19 U
Tetrachloroethene	0.25	0.31	0.3	0.23 U
1,1,2,2-Tetrachloroethane	0.24 U	0.23 U	0.24 U	0.23 U
trans-1,2-Dichloroethene	0.69 U	0.67 U	0.69 U	0.68 U
Chloromethane	1.1	0.9	1.1	0.82
Chloroethane	0.23 U	0.22 U	0.23 U	0.22 U
Chlorobenzene	0.16 U	0.15 U	0.16 U	0.16 U
Carbon Tetrachloride	0.4	0.47	0.43	0.22 U

Notes:

ug/m3 - micrograms per cubic meter

U - not detected at indicated concentration

Table 5-1
Summary of Indoor Air Sampling
2010 - 2011 Vapor Intrusion
Performance Monitoring
Watervliet Arsenal
Watervliet, New York

Building	**Building 15**				**Building 21**	
Sample ID	IA-B15-1	IA-B15-1	IA-B15-2	IA-B15-2	IA-B21-1	IA-B21-1
Sample Date	3/31/2010	11/21/2011	3/31/2010	11/21/2011	3/31/2010	11/21/2011
Dilution	2.12	1.64	1.58	1.71	1.52	1.71
Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
COMPOUND						
Vinyl Chloride	0.054 U	0.042 U	0.04 U	0.044 U	0.039 U	0.044 U
1,1-Dichloroethene	0.084 U	0.065 U	0.063 U	0.068 U	0.06 U	0.068 U
1,1-Dichloroethane	0.17 U	0.13 U	0.13 U	0.14 U	0.12 U	0.14 U
cis-1,2-Dichloroethene	0.17 U	0.13 U	0.12 U	0.14 U	0.12 U	0.14 U
1,1,1-Trichloroethane	0.23 U	0.18 U	0.17 U	0.19 U	0.16 U	0.19 U
1,2-Dichloroethane	0.17 U	0.13 U	0.14	0.14 U	0.12 U	0.14 U
Trichloroethene	0.23 U	0.18 U	0.51	0.18 U	0.52	0.18 U
1,1,2-Trichloroethane	0.23 U	0.18 U	0.17 U	0.19 U	0.16 U	0.19 U
Tetrachloroethene	0.29 U	0.22 U	16	0.23 U	0.31	0.23 U
1,1,2,2-Tetrachloroethane	0.29 U	0.22 U	0.22 U	0.23 U	0.21 U	0.23 U
trans-1,2-Dichloroethene	0.84 U	0.65 U	0.63 U	0.68 U	0.6 U	0.68 U
Chloromethane	1.8	0.86	1.6	0.92	1.5	0.78
Chloroethane	0.28 U	0.22 U	0.21 U	0.22 U	0.2 U	0.22 U
Chlorobenzene	0.2 U	0.15 U	0.14 U	0.16 U	0.14 U	0.16 U
Carbon Tetrachloride	0.43	0.5	0.42	0.48	0.43	0.43

Notes:

ug/m3 - micrograms per cubic meter

U - not detected at indicated concentration

Table 5-1
Summary of Indoor Air Sampling
2010 - 2011 Vapor Intrusion
Performance Monitoring
Watervliet Arsenal
Watervliet, New York

Building	**Building 21**		**Building 120**			
Sample ID	IA-B21-2	IA-B21-2	IA-B120-1	IA-B120-1	IA-B120-2	IA-B120-2
Sample Date	3/31/2010	11/21/2011	4/1/2010	11/21/2011	4/1/2010	11/21/2011
Dilution	1.68	1.71	1.75	1.71	1.75	1.64
Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
COMPOUND						
Vinyl Chloride	0.043 U	0.044 U	0.045 U	0.044 U	0.045 U	0.042 U
1,1-Dichloroethene	0.067 U	0.068 U	0.069 U	0.068 U	0.069 U	0.065 U
1,1-Dichloroethane	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.13 U
cis-1,2-Dichloroethene	0.13 U	0.14 U	0.14 U	0.14 U	0.14 U	0.13 U
1,1,1-Trichloroethane	0.18 U	0.19 U	0.19 U	0.21	0.19 U	0.75
1,2-Dichloroethane	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.13 U
Trichloroethene	0.18 U	0.18 U	0.19 U	0.18 U	0.19 U	0.42
1,1,2-Trichloroethane	0.18 U	0.19 U	0.19 U	0.19 U	0.19 U	0.18 U
Tetrachloroethene	0.23 U	0.23 U	0.24 U	0.23 U	1.1	0.25
1,1,2,2-Tetrachloroethane	0.23 U	0.23 U	0.24 U	0.23 U	0.24 U	0.22 U
trans-1,2-Dichloroethene	0.67 U	0.68 U	0.69 U	0.68 U	0.69 U	0.65 U
Chloromethane	1.6	0.85	1.7	0.86	1.5	0.83
Chloroethane	0.22 U	0.22 U	0.23 U	0.22 U	0.23 U	0.22 U
Chlorobenzene	0.15 U	0.16 U	0.16 U	0.16 U	0.16 U	0.15 U
Carbon Tetrachloride	0.42	0.52	0.45	0.49	0.4	0.47

Notes:

ug/m3 - micrograms per cubic meter

U - not detected at indicated concentration

Table 5-1
Summary of Indoor Air Sampling
2010 - 2011 Vapor Intrusion
Performance Monitoring
Watervliet Arsenal
Watervliet, New York

Building	**Building 114**		**Building 121**		
Sample ID	IA-B114-1	IA-B114-1	IA-B121-1	IA-B121-1	*IA-B121-1 Duplicate*
Sample Date	4/1/2010	11/21/2011	4/1/2010	11/21/2011	11/21/2011
Dilution	1.87	1.75	1.75	1.68	1.68
Units	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
COMPOUND					
Vinyl Chloride	0.048 U	0.045 U	0.045 U	0.043 U	0.043 U
1,1-Dichloroethene	0.074 U	0.069 U	0.069 U	0.067 U	0.067 U
1,1-Dichloroethane	0.15 U	0.14 U	0.14 U	0.14 U	0.14 U
cis-1,2-Dichloroethene	0.32	0.14 U	0.14 U	0.13 U	0.13 U
1,1,1-Trichloroethane	0.59	4.2	0.24	0.75	0.7
1,2-Dichloroethane	0.15 U	0.14 U	0.14 U	0.14 U	0.14 U
Trichloroethene	3.7	0.19 U	0.19 U	0.18 U	0.18 U
1,1,2-Trichloroethane	0.2 U	0.19 U	0.19 U	0.18 U	0.18 U
Tetrachloroethene	14	1.2	0.24 U	0.23 U	0.23 U
1,1,2,2-Tetrachloroethane	0.26 U	0.24 U	0.24 U	0.23 U	0.23 U
trans-1,2-Dichloroethene	0.74 U	0.69 U	0.69 U	0.67 U	0.67 U
Chloromethane	1.5	0.86	1.6	0.86	0.84
Chloroethane	0.25 U	0.23 U	0.23 U	0.22 U	0.22 U
Chlorobenzene	0.17 U	0.16 U	0.16 U	0.15 U	0.15 U
Carbon Tetrachloride	0.42	0.54	0.4	0.46	0.46

Notes:

ug/m3 - micrograms per cubic meter

U - not detected at indicated concentration

Table 5-1
Summary of Indoor Air Sampling
2010 - 2011 Vapor Intrusion
Performance Monitoring
Watervliet Arsenal
Watervliet, New York

Building	**Building 130**	
Sample ID	IA-B130-1	IA-B130-1
Sample Date	4/1/2010	11/21/2011
Dilution	1.64	1.79
Units	µg/m^3	µg/m^3
COMPOUND		
Vinyl Chloride	0.042 U	0.046 U
1,1-Dichloroethene	0.065 U	0.071 U
1,1-Dichloroethane	0.13 U	0.14 U
cis-1,2-Dichloroethene	0.13 U	0.14 U
1,1,1-Trichloroethane	0.18 U	0.2 U
1,2-Dichloroethane	0.13 U	0.14 U
Trichloroethene	0.19	0.33
1,1,2-Trichloroethane	0.18 U	0.2 U
Tetrachloroethene	0.32	0.46
1,1,2,2-Tetrachloroethane	0.22 U	0.24 U
trans-1,2-Dichloroethene	0.65 U	0.71 U
Chloromethane	1.6	0.82
Chloroethane	0.22 U	0.24 U
Chlorobenzene	0.15 U	0.16 U
Carbon Tetrachloride	0.43	0.47

Notes:

ug/m3 - micrograms per cubic meter

U - not detected at indicated concentration

ARCADIS MALCOLM PIRNIE

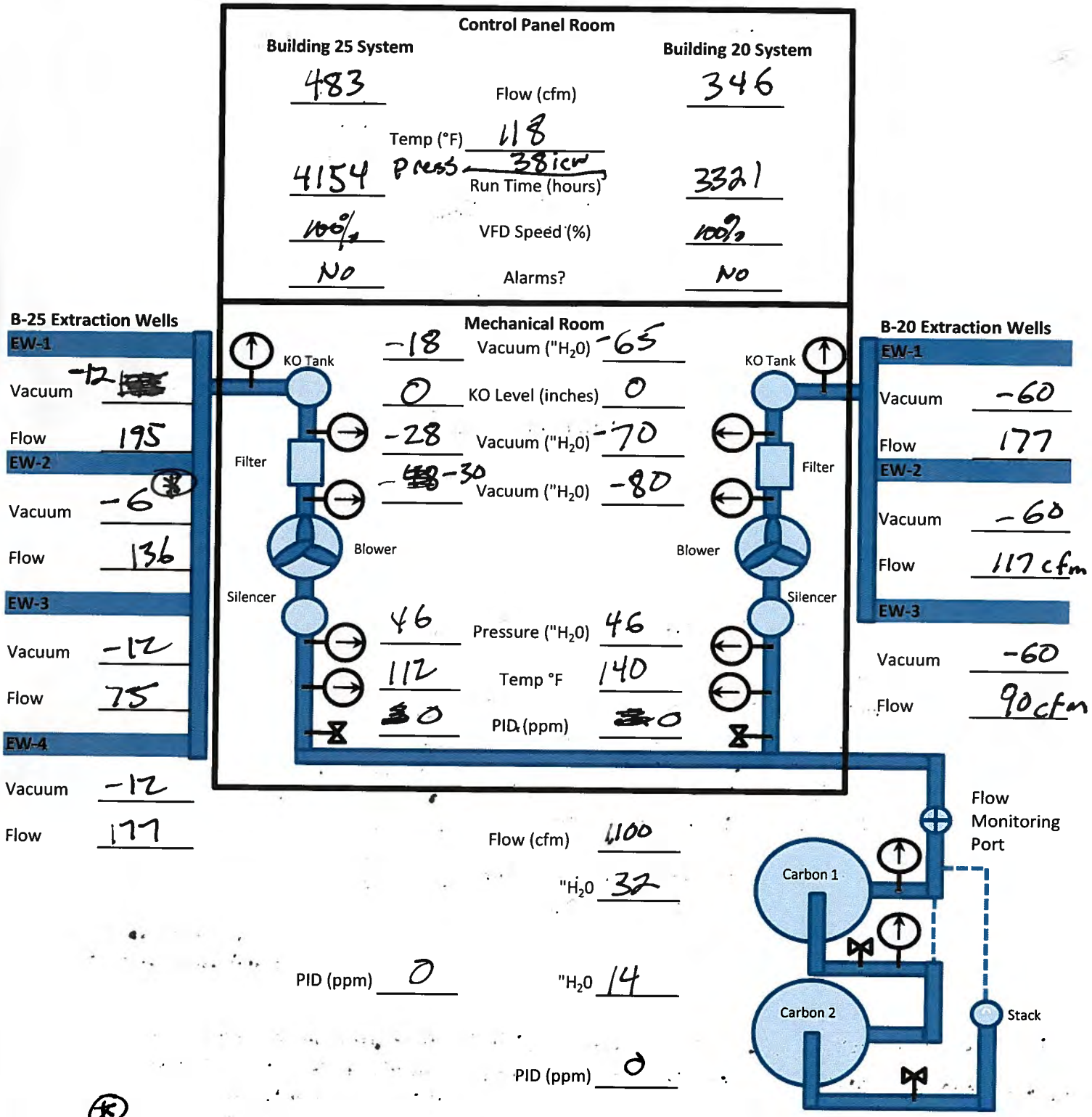
Appendix A

Operation and Maintenance Field Checklists

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 1/27/11

Inspector J. Wycraft



Notes: (*) Gauge face for EW-2 press broken.

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 1/27/11

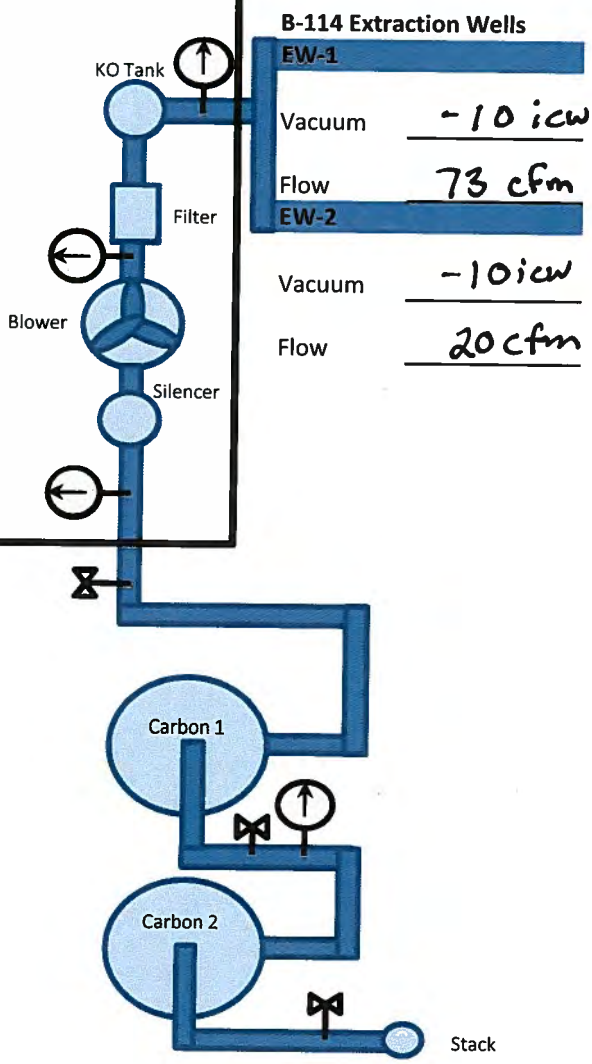
Inspector J. Wyckoff

Control Panel

Flow (cfm)	78
Temp (°F)	79
Run Time (min)	1352
VFD Speed (%)	100%/3450 Rpm
Alarms?	N

System Enclosure

Vacuum ("H_2O)	-13
KO Level (inches)	0
Vacuum ("H_2O)	-20
Pressure ("H_2O)	4
PID (ppm)	3
PID (ppm)	0
Pressure ("H_2O)	2.5
PID (ppm)	0



Notes: Flow meter Programming Installed today

H:\PROJECT\2118163\FILE\O&M\SSDS O&M Checklists

Operation and Maintenance Checklist
Type "C" SSDSs
Watervliet Arsenal
Watervliet, New York

Date 1/27/11

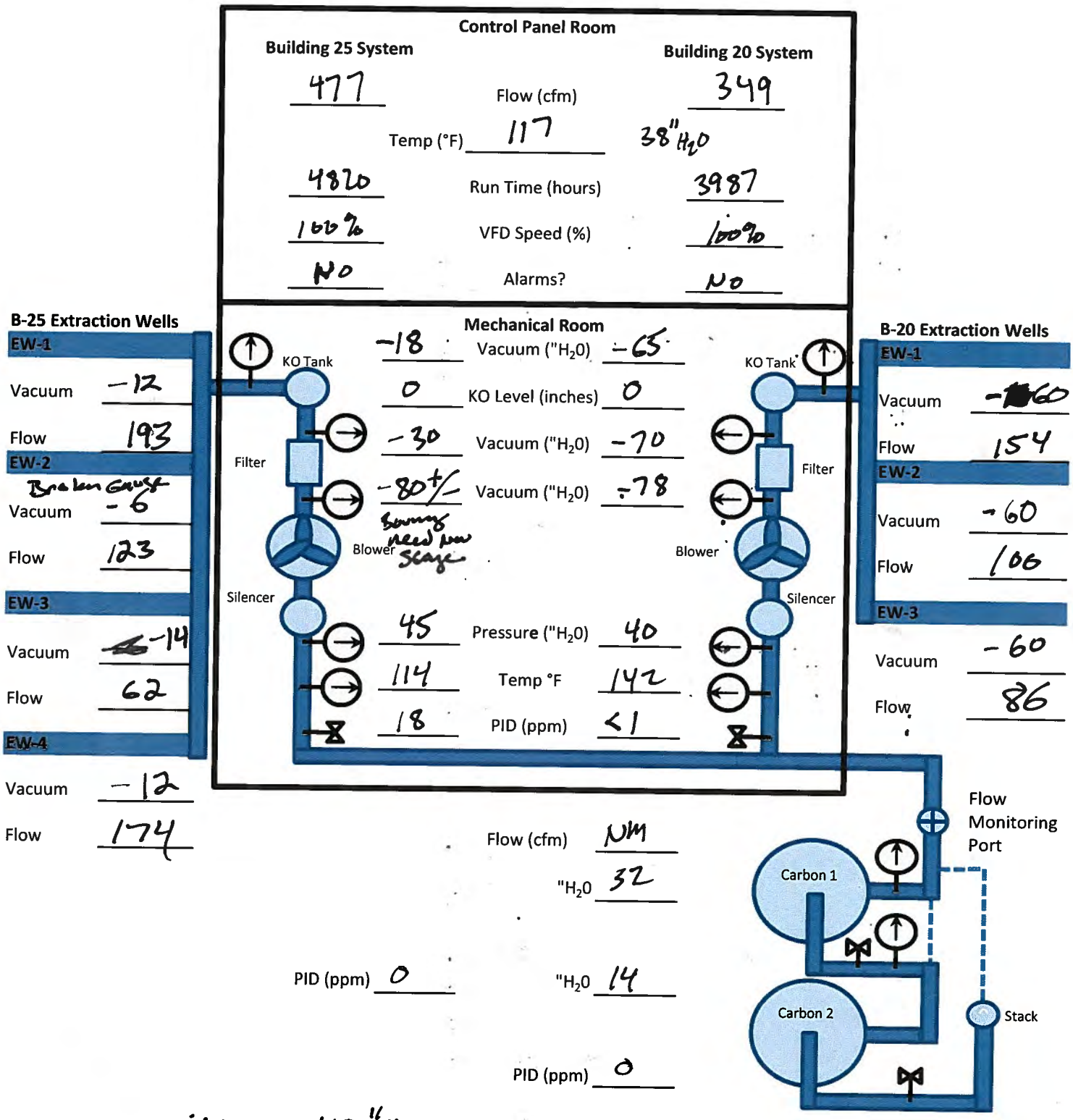
Inspector J Wyckoff

Building	Extraction Well	Extraction Well Location	Room	System On?	Vacuum ("H_20)	Flow (cfm)
21	EW-2	Main floor, northwest side of building	134	Yes	3	8
		Notes: See Dawn for access before NDOW. Have Jethro send email and Dawn will leave Door unlocked.				
22	EW-1	Basement, east side of building	Storage Area	Yes	2	16
		Notes:				
22	EW-2	Main floor, west side of building	Truck Bay	Yes	Gauge Inop.	50
		Notes:				
120	EW-1	Main floor, south end of wood shop	Wood Shop	Yes	1.5	28
	EW-2	Main floor, north end of wood shop	Wood Shop		2	34
		Notes:				
121	EW-1	Main floor, southeast corner of building	Lab	NO		
		Notes: Fan motor removed for warrenty replacement.				
130	EW-1	Main floor, ~~North~~ west corner of building	Storage Area	Yes	NM	NM
		Notes: NO Access to Extraction well.				

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 2/24/11

Inspector JRW



Notes: with 0-100 "H2O Vacuum Gauge

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 2/24/11

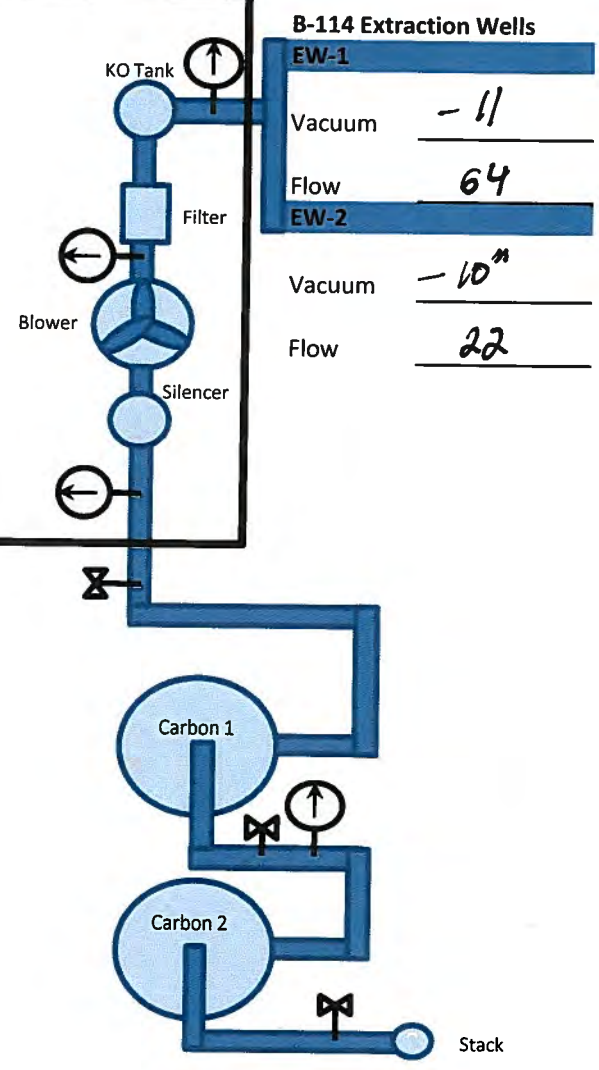
Inspector JLW

Control Panel

Flow (cfm)	80
Temp (°F)	69
Run Time (min)	2024
VFD Speed (%)	MTR: 3450 @ 94.1% set to speed/current
Alarms?	No

System Enclosure

Vacuum ("H_2O)	-13
KO Level (inches)	6
Vacuum ("H_2O)	-19
Pressure ("H_2O)	4
PID (ppm)	1
PID (ppm)	0
Pressure ("H_2O)	4.5
PID (ppm)	0



Notes: Drain KO TANK

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 3/30/11

Inspector Jeremy Wackoff

Building 25 System	Control Panel Room	Building 20 System
480	Flow (cfm)	349
	Pressure ("H_2O) 40	
	Temp (°F) 118	
5634	Run Time (hours)	4807
100	VFD Speed (%)	100
N	Alarms?	N

B-25 Extraction Wells

EW-1	
Vacuum	-12
Flow	196
EW-2	
Vacuum	-7
Flow	125
EW-3	
Vacuum	-12
Flow	56
EW-4	
Vacuum	-12
Flow	177

Mechanical Room

-20	Vacuum ("H_2O)	-65	
0	KO Level (inches)	0	
-30	Vacuum ("H_2O)	-70	
-26	Vacuum ("H_2O)	-80	
45	Pressure ("H_2O)	35	
117	Temp °F	142	
0.0	PID (ppm)	0.0	

KO Tank, Filter, Blower, Silencer

B-20 Extraction Wells

EW-1	
Vacuum	-60
Flow	173
EW-2	
Vacuum	-56
Flow	104
EW-3	
Vacuum	-60
Flow	97

Flow (cfm) NM

"H_2O 32

PID (ppm) 0.0

"H_2O 14

PID (ppm) 0.0

Flow Monitoring Port

Carbon 1

Carbon 2

Stack

Notes: Collect air samples using 6-Liter Summa Canisters.

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 3/30/11

Inspector Jeremy Wyckoff

Control Panel

Flow (cfm) _____

Temp (°F) _____

Run Time (min) _____

VFD Speed (%) _____

Alarms? _____

NO Access

System Enclosure

Vacuum ("H_2O) -13

KO Level (inches) 2.17

Vacuum ("H_2O) -19

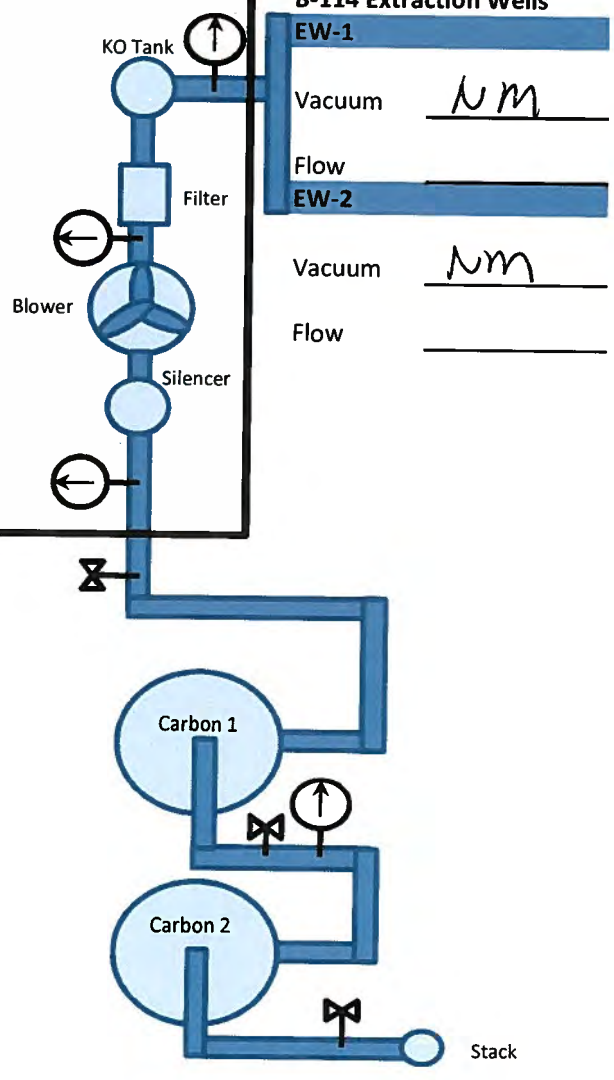
Pressure ("H_2O) 4

PID (ppm) 0

PID (ppm) 0

Pressure ("H_2O) 3.5

PID (ppm) 0



B-114 Extraction Wells

EW-1

Vacuum NM

Flow _____

EW-2

Vacuum NM

Flow _____

Notes: Building locked. No access to extraction wells or control panel. Collected Air samples using 6-Liter Summa Canisters.

Operation and Maintenance Checklist
Type "C" SSDSs
Watervliet Arsenal
Watervliet, New York

Date 3/30/11

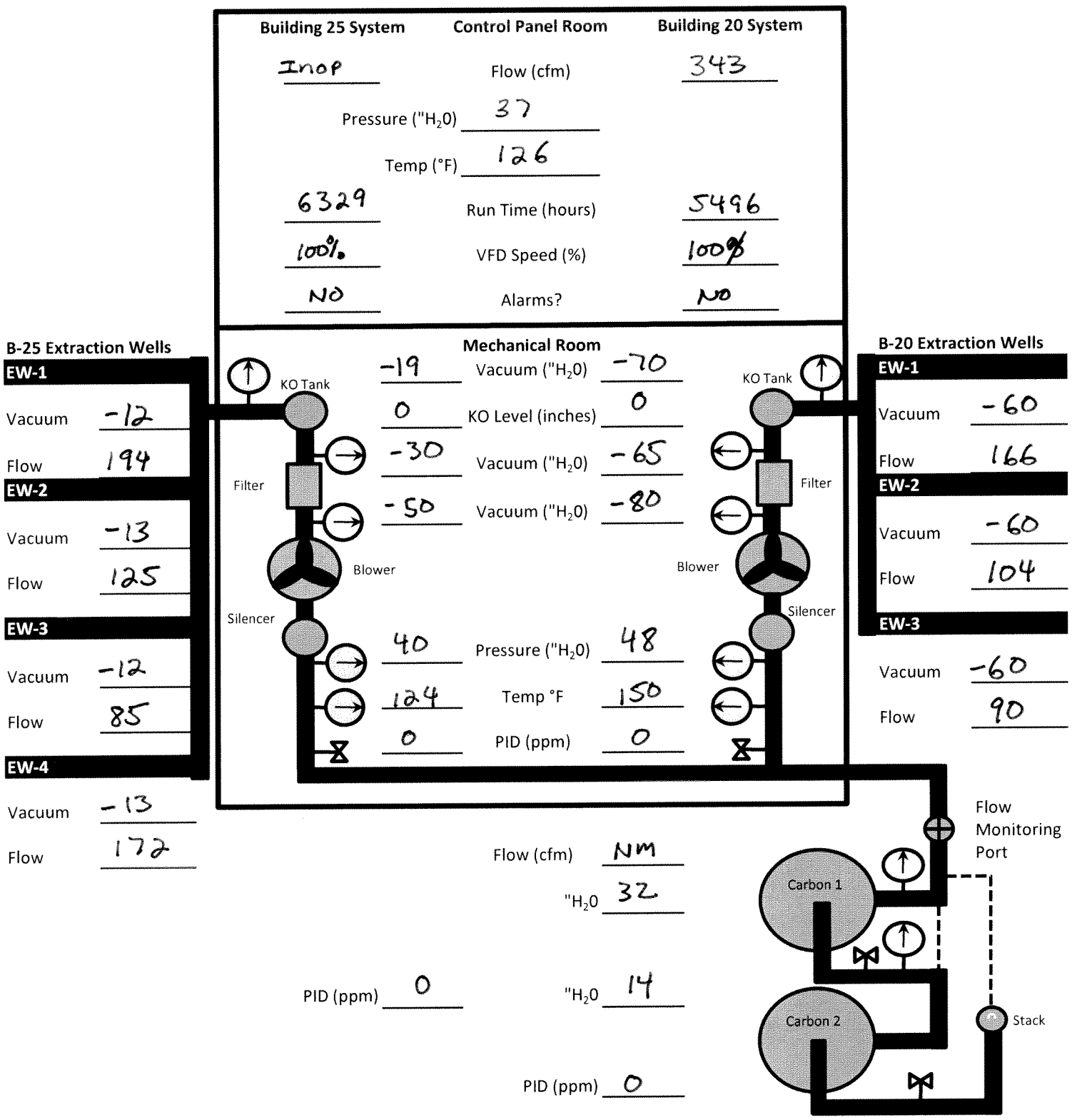
Inspector Jeremy Wyckoff

Building	Extraction Well	Extraction Well Location	Room	System On?	Vacuum ("H_2O)	Flow (cfm)
21	EW-2	Main floor, northwest side of building	134	yes		
		Notes: no access to well				
22	EW-1	Basement, east side of building	Storage Area	yes	2	10.5
		Notes:				
22	EW-2	Main floor, west side of building	Truck Bay	yes	2	48
		Notes:				
120	EW-1	Main floor, south end of wood shop	Wood Shop	yes	1.8	19.8
	EW-2	Main floor, north end of wood shop	Wood Shop		1.8	32.4
		Notes: Adjust EW-1 → wide open flow = 27				
121	EW-1	Main floor, southeast corner of building	Lab	yes	2	54.5
		Notes:				
130	EW-1	Main floor, southwest corner of building	Storage Area	yes		
		Notes: no access to well				

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 4/28/11

Inspector J. Wyckoff



Notes: B25 Flow meter Inop. Reads 0 cfm. Found oil leak @ B25 Blower. Possible Leak @ Drive shaft seal. Turned B25 system off. Replaced B25 EW-3 + EW-4 vacuum gauges w/ 0-60".

Operation and Maintenance Checklist
Building 21 SSDS
Watervliet Arsenal
Watervliet, New York

Date 4/28/11

Inspector J. Wyckoff

Control Panel

Flow (cfm) 150 cfm ?

Temp (°F) 98

Run Time (min) 3181

VFD Speed (%) 100%

Alarms? "Flow high-high"

System Enclosure

Vacuum ("H_2O) -25

KO Level (inches) 2.5 - drained unit

Vacuum ("H_2O) -30

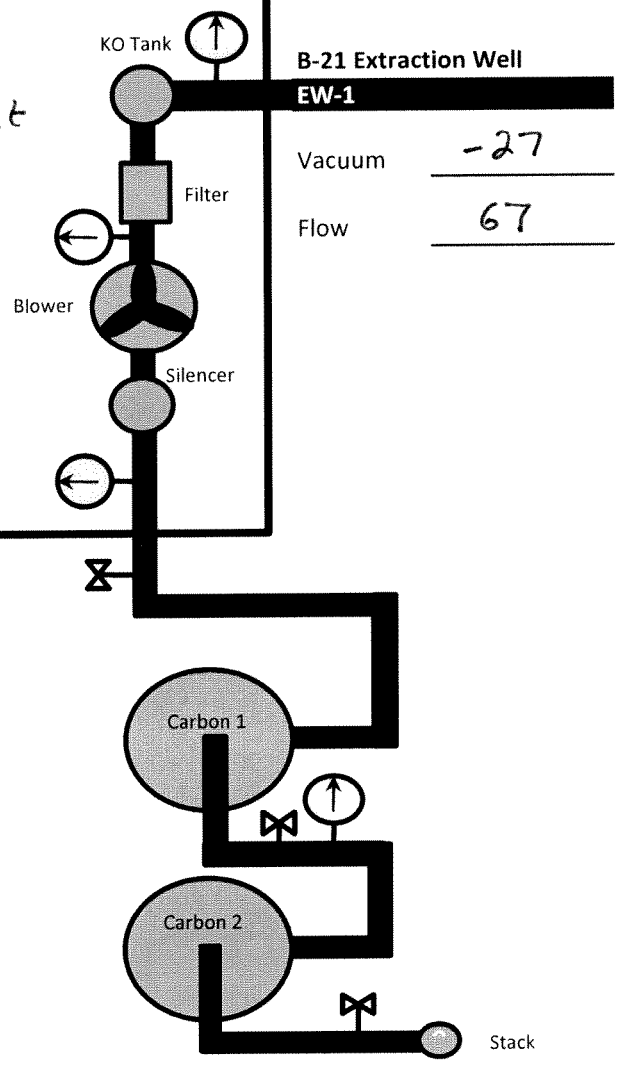
Pressure ("H_2O) 8

PID (ppm) 4

PID (ppm) 0

Pressure ("H_2O) 5

PID (ppm) 0



Notes: Flow meter Inop- Reads 150 cfm but manual reading = 67 cfm. Install flow Totalizer on KO Tank Discharge Line. 1 pump cycle ≈ 14.5 gallons. Vent Fan VFD @ 40 HZ.

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 4/28/11

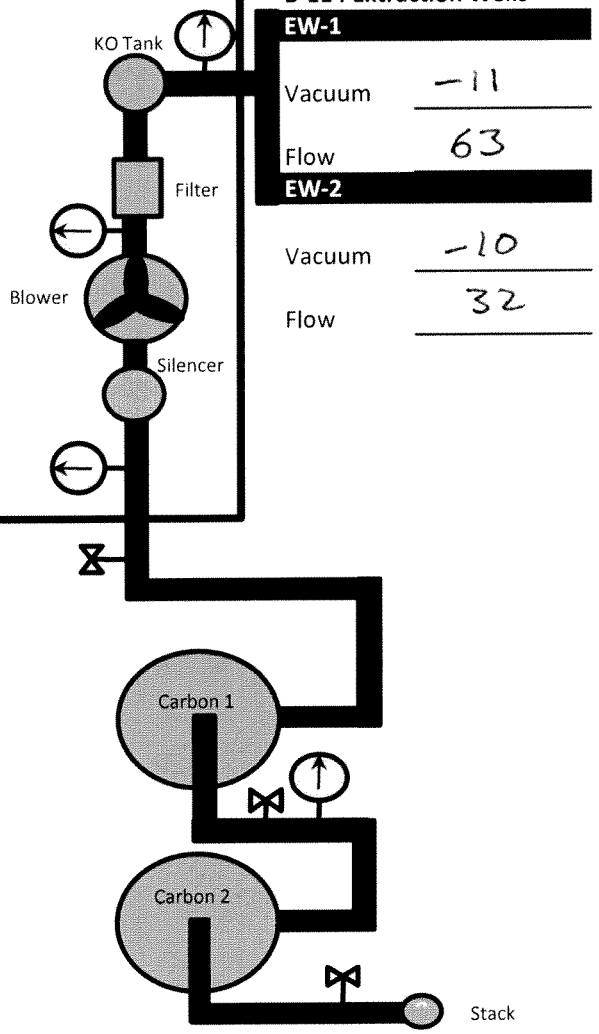
Inspector J. Wyckoff

Control Panel

Flow (cfm)	78
Temp (°F)	96
Run Time (min)	3532
VFD Speed (%)	100%
Alarms?	NO

System Enclosure

Vacuum ("H_2O)	-14
KO Level (inches)	0
Vacuum ("H_2O)	-20
Pressure ("H_2O)	4
PID (ppm)	4
PID (ppm)	5
Pressure ("H_2O)	2.5
PID (ppm)	0



B-114 Extraction Wells

EW-1	
Vacuum	-11
Flow	63
EW-2	
Vacuum	-10
Flow	32

Notes: New carbon on order.

Operation and Maintenance Checklist
Type "C" SSDSs
Watervliet Arsenal
Watervliet, New York

Date 4/28/11

Inspector J. Wyckoff

Building	Extraction Well	Extraction Well Location	Room	System On?	Vacuum ("H_20)	Flow (cfm)
21	EW-2	Main floor, northwest side of building	134	Yes	Nm	Nm
		Notes: No access to room 134				
22	EW-1	Basement, east side of building	Storage Area	Yes	Nm	Nm
		Notes: NOT Accessed.				
22	EW-2	Main floor, west side of building	Truck Bay	Yes	-2.5	Nm.
		Notes: Drain water. Install new Vacuum Gauge. 0-15"				
120	EW-1	Main floor, south end of wood shop	Wood Shop	Yes.	1.8	23
	EW-2	Main floor, north end of wood shop	Wood Shop		1.8	32
		Notes:				
121	EW-1	Main floor, southeast corner of building	Lab	Yes	Nm	Nm
		Notes: No Access to bldg				
130	EW-1	Main floor, southwest corner of building	Storage Area	Yes	Nm	Nm
		Notes: No Access to bldg				

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 5/12/11

Inspector J. Winckoff

Building 25 System	Control Panel Room	Building 20 System
	Flow (cfm)	353
	Pressure ("H_2O)	8 to 10
	Temp (°F)	131
	Run Time (hours)	5823.48
	VFD Speed (%)	100%
	Alarms?	NO

B-25 Extraction Wells

EW-1
Vacuum
Flow
EW-2
Vacuum
Flow
EW-3
Vacuum
Flow
EW-4
Vacuum
Flow

Mechanical Room

Vacuum ("H_2O)	-68
KO Level (inches)	0
Vacuum ("H_2O)	-72
Vacuum ("H_2O)	-82
Pressure ("H_2O)	8
Temp °F	132
PID (ppm)	NM

KO Tank, Filter, Blower, Silencer

B-20 Extraction Wells

EW-1
Vacuum NM
Flow NM
EW-2
Vacuum NM
Flow NM
EW-3
Vacuum NM
Flow NM

Flow (cfm) NM
"H_2O 8
PID (ppm) NM
"H_2O 2
PID (ppm) NM

Flow Monitoring Port
Carbon 1
Carbon 2
Stack

Notes: B25 system down due to blower leak.
B20 system in "auto" mode but display shows system "auto off"

Operation and Maintenance Checklist
Building 21 SSDS
Watervliet Arsenal
Watervliet, New York

Date 5/12/11

Inspector J. Wyckoff

Control Panel

Flow (cfm): Initial 0 / 30 Irratic

Temp (°F): 74

Run Time ~~(min)~~ hours: 3510.18

VFD Speed (%): Initial 47 / SET @ 85%

Alarms? Blower Influent "Low"

System Enclosure

Vacuum ("H_2O): -30

KO Level (inches): 2" Drained

Vacuum ("H_2O): -30

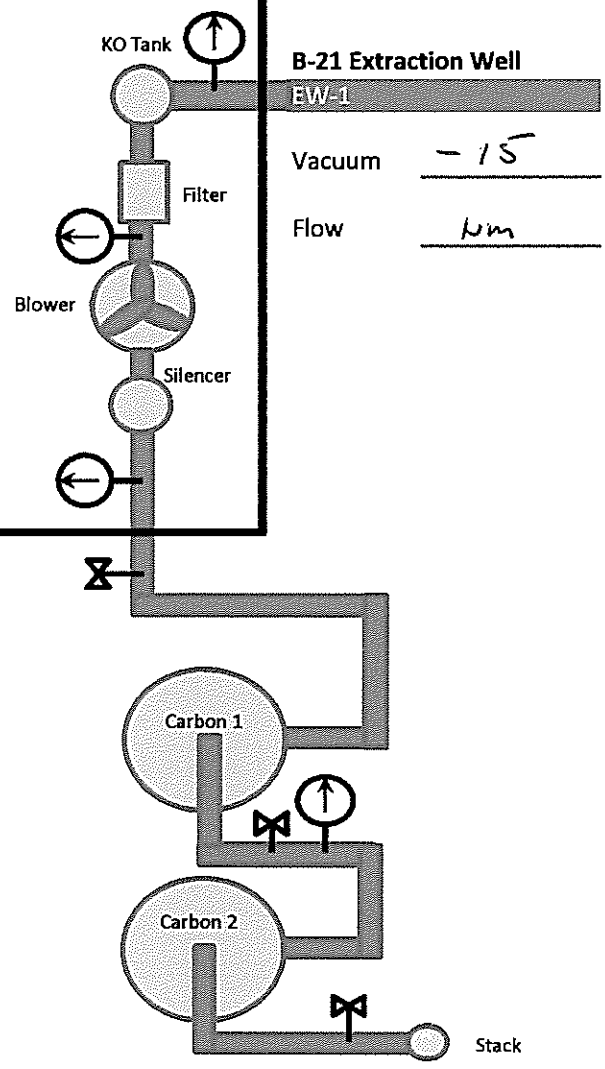
Pressure ("H_2O): 5

PID (ppm): Nm

PID (ppm): Nm

Pressure ("H_2O): 4

PID (ppm): Nm



Notes: System on Alarm for Blown Low Flow. Increased speed to 100% (was @ 47%) Flow meter readings irratic. Water in discharge hose → Drained. KO Tank in Basement to bal = 175 then pumped → 189 tank empty but pump still running. Contacted AZ Tech → will inspect next week. Disconnected for now.

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 5/12/11

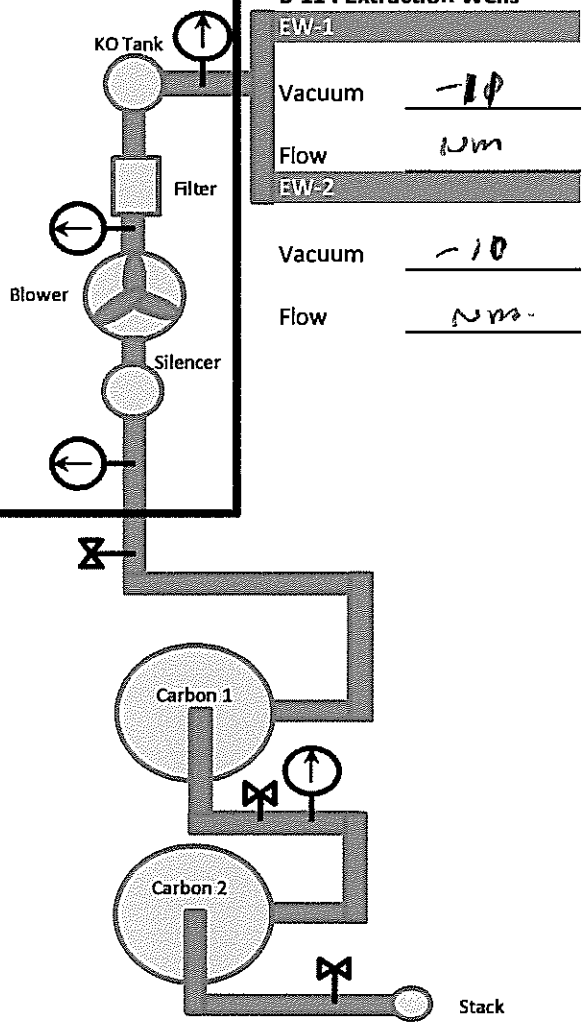
Inspector J. Wyckoff

Control Panel

Flow (cfm)	78
Temp (°F)	63
Run Time (min)	3859.30
VFD Speed (%)	100% 3450
Alarms?	NO

System Enclosure

Vacuum ("H_2O)	-12
KO Level (inches)	0
Vacuum ("H_2O)	-20
Pressure ("H_2O)	4
PID (ppm)	nm
PID (ppm)	nm
Pressure ("H_2O)	+2
PID (ppm)	nm



B-114 Extraction Wells

EW-1	
Vacuum	-10
Flow	nm
EW-2	
Vacuum	-10
Flow	nm

Notes: Replaced C_1 & C_2 carbon drums.
0850 – Collect carbon sample for waste disposal - B114 carbon.
- Sample is composite of C_1 & C_2.

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 6/23/11

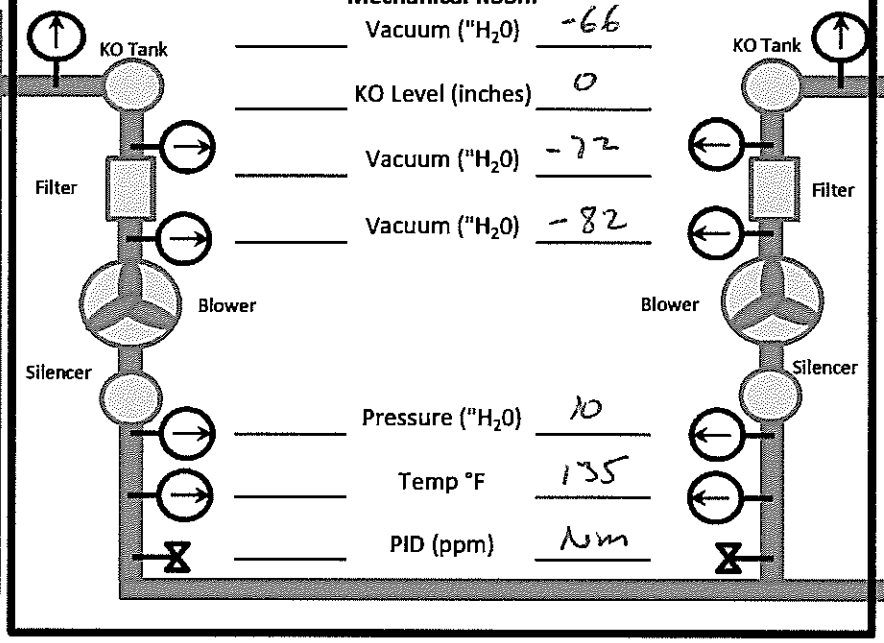
Inspector J. Wyckoff

Building 25 System	Control Panel Room	Building 20 System
	Flow (cfm)	349
	Pressure ("H_2O)	8
	Temp (°F)	133
	Run Time (hours)	6830.8
	VFD Speed (%)	100
	Alarms?	NO

B-25 Extraction Wells

EW-1
Vacuum
Flow
EW-2
Vacuum
Flow
EW-3
Vacuum
Flow
EW-4
Vacuum
Flow

Mechanical Room

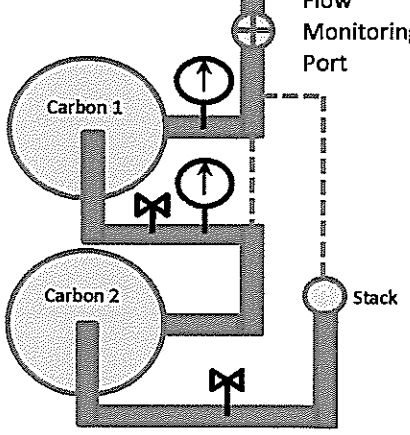


Vacuum ("H_2O)	-66
KO Level (inches)	0
Vacuum ("H_2O)	-72
Vacuum ("H_2O)	-82
Pressure ("H_2O)	10
Temp °F	135
PID (ppm)	NM

B-20 Extraction Wells

EW-1
Vacuum -62
Flow 168
EW-2
Vacuum -62
Flow 105
EW-3
Vacuum -62
Flow 93

Flow (cfm) NM
"H_2O 8
PID (ppm) NM
"H_2O 2
PID (ppm) NM



Notes: B25 Blower out for repairs.
B20 Panel shows system in "Auto Off" mode when system is operating.

Operation and Maintenance Checklist
Building 21 SSDS
Watervliet Arsenal
Watervliet, New York

Date 6/23/11

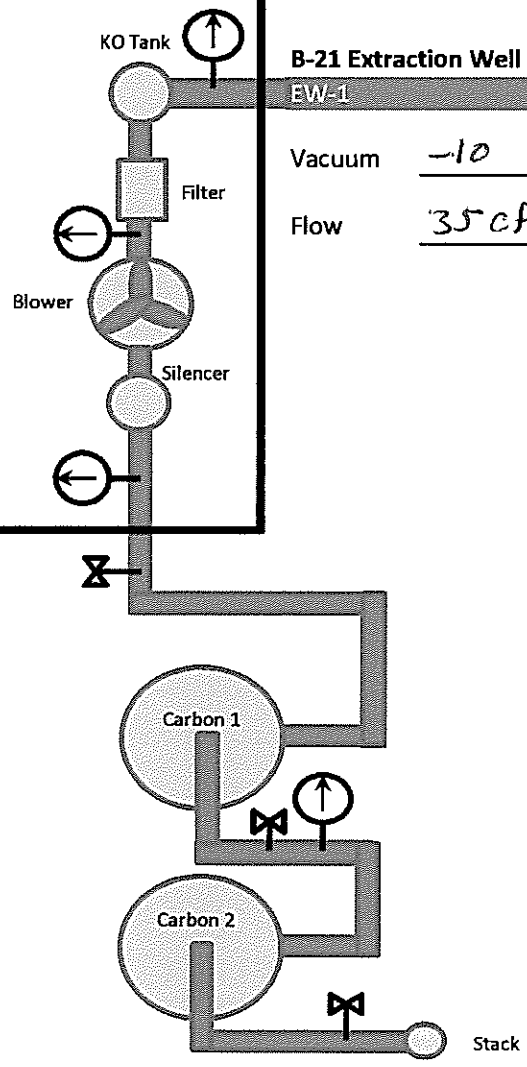
Inspector J. Wyckoff

Control Panel

Flow (cfm)	150 - Too high measured 35 cfm
Temp (°F)	74
Run Time (min)	4517.58
VFD Speed (%)	90% 3106 RPM. influent
Alarms?	Blower, High High

System Enclosure

Vacuum ("H_2O)	-25
KO Level (inches)	1.5
Vacuum ("H_2O)	-30
Pressure ("H_2O)	6
PID (ppm)	nm
PID (ppm)	NM
Pressure ("H_2O)	6
PID (ppm)	NM



Notes: Totalizer for basement KO Tank @ 286.7 gallons.
Vent fan @ 40 HZ.
System was on but @ 35% on VFD. Water in line w/ no flow
Increased to 90%.

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 6/23/11

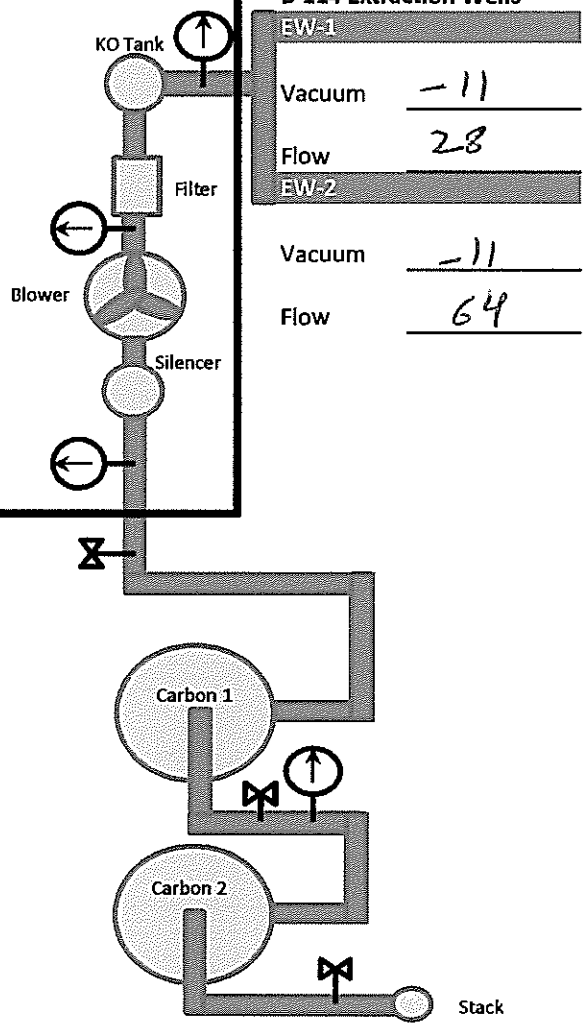
Inspector J. Wickoff

Control Panel

Flow (cfm)	77
Temp (°F)	95
Run Time (min)	4867.48
VFD Speed (%)	100%
Alarms?	NO

System Enclosure

Vacuum ("H_2O)	-14
KO Level (inches)	0
Vacuum ("H_2O)	-20
Pressure ("H_2O)	4
PID (ppm)	NM
PID (ppm)	NM
Pressure ("H_2O)	2.5
PID (ppm)	NM



B-114 Extraction Wells

EW-1	
Vacuum	-11
Flow	28
EW-2	
Vacuum	-11
Flow	64

Notes: Vent Fan @ 40 Hz.

Operation and Maintenance Checklist
Type "C" SSDSs
Watervliet Arsenal
Watervliet, New York

Date 6/23/11

Inspector J. Wyckoff

Building	Extraction Well	Extraction Well Location	Room	System On?	Vacuum ("H_20)	Flow (cfm)
21	EW-2	Main floor, northwest side of building	134	Yes	Nm	Nm
		Notes: NO Access				
22	EW-1	Basement, east side of building	Storage Area	Yes	2.5	15
		Notes:				
22	EW-2	Main floor, west side of building	Truck Bay	Yes	1.5	53
		Notes:				
120	EW-1	Main floor, south end of wood shop	Wood Shop	Yes	1.8	37
	EW-2	Main floor, north end of wood shop	Wood Shop		1.8	32
		Notes:				
121	EW-1	Main floor, southeast corner of building	Lab	Yes	1.5	51
		Notes:				
130	EW-1	Main floor, northwest corner of building	Storage Area	Yes	Nm	Nm
		Notes: NO Access				

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 7/13/11

Inspector J. Wyckoff

Building 25 System	Control Panel Room	Building 20 System
Inop	Flow (cfm)	329
	Pressure ("H_2O) 37	
	Temp (°F) 129	
6446.18	Run Time (hours)	7306.54
100	VFD Speed (%)	100
N	Alarms?	N

B-25 Extraction Wells

EW-1	
Vacuum	-8
Flow	152
EW-2	
Vacuum	-10
Flow	111
EW-3	
Vacuum	-10
Flow	59
EW-4	
Vacuum	-12
Flow	155

Mechanical Room

	Vacuum ("H_2O)	-64
-16	KO Tank	KO Tank
0	KO Level (inches)	0
-26	Vacuum ("H_2O)	-70
Filter		Filter
-50	Vacuum ("H_2O)	-80
Blower		Blower
Silencer		Silencer
40	Pressure ("H_2O)	35
128	Temp °F	156
103	PID (ppm)	0.0

B-20 Extraction Wells

EW-1	
Vacuum	-58
Flow	170
EW-2	
Vacuum	-58
Flow	115
EW-3	
Vacuum	-58
Flow	95

Flow (cfm) Nim

"H_2O 14

PID (ppm) 0

"H_2O 30

PID (ppm) 0

Flow Monitoring Port

Carbon 1

Carbon 2

Stack

Notes: Both systems were @ 46Hz (Default)
Turned to 100% B25 system showed Fault #25 Line Voltage Error.
Found Fuse missing from SAFETY SW: #4, Likely removed Prior to B25
Blower Removal and never installed. Note Replacement B25 Blower
Installed on 7/8/11.

Inlet Filter B25 235P Solberg

Operation and Maintenance Checklist
Building 21 SSDS
Watervliet Arsenal
Watervliet, New York

Date 7/13/11

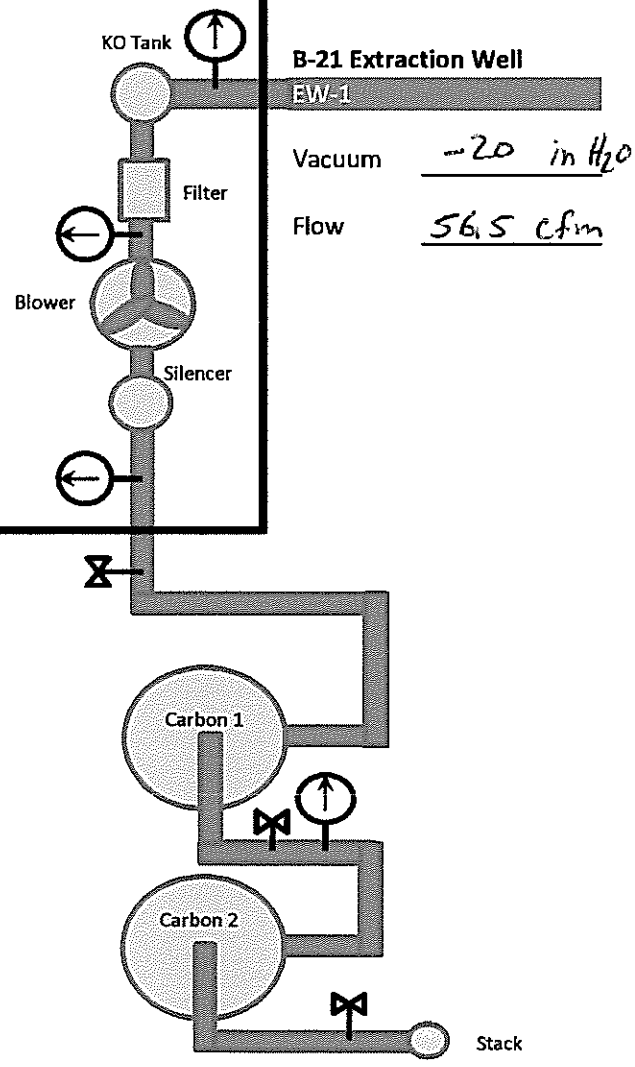
Inspector J. Wyckoff

Control Panel

Flow (cfm)	150 (Inop-too high)
Temp (°F)	107
Run Time (~~min~~ hours)	4996.12
VFD Speed (%)	100%
Alarms?	Yes "Flow High High"

System Enclosure

Vacuum ("H_2O)	-25
KO Level (inches)	9.5
Vacuum ("H_2O)	-30
Pressure ("H_2O)	10
PID (ppm)	NM
PID (ppm)	NM
Pressure ("H_2O)	6
PID (ppm)	NM



Notes: Basement KO Totalizer = 407 gallons.
System Down - Flow High High Alarm. Reset. Water in discharge line.
Installed tee fitting in discharge stack w/ drain.
Install piezometer adjacent to Extraction well to monitor sub-slab water level. Level approx 6-8" below slab.

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 7/13/11

Inspector J. Wyckoff

Control Panel

Flow (cfm) 76

Temp (°F) 106

Run Time (~~min~~ hours) 5347.19

VFD Speed (%) 100%

Alarms? NO

System Enclosure

Vacuum ("H_2O) -13

KO Level (inches) 0

Vacuum ("H_2O) -20

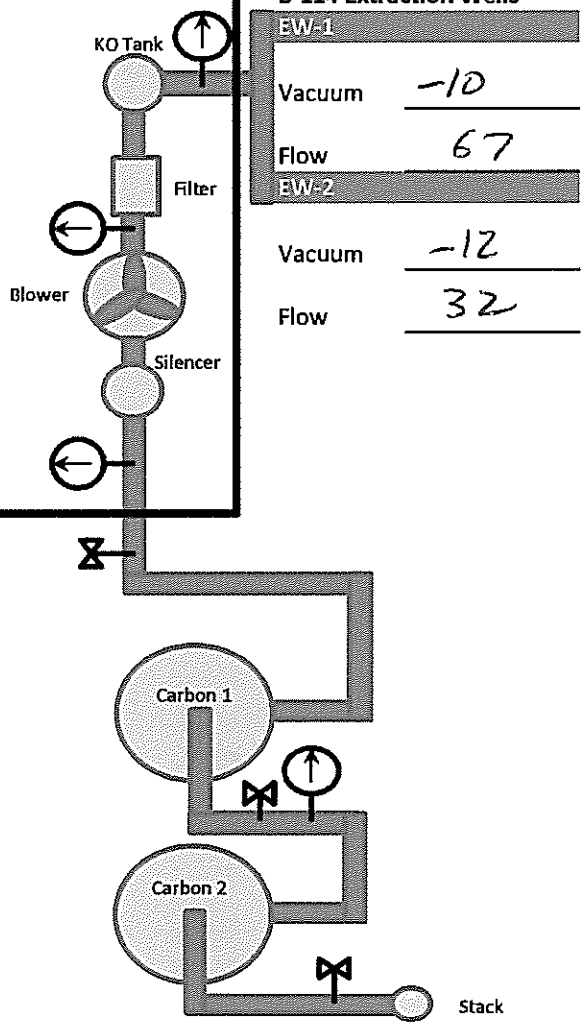
Pressure ("H_2O) 2

PID (ppm) 0.2

PID (ppm) 0.0

Pressure ("H_2O) 2

PID (ppm) 0.0



B-114 Extraction Wells

EW-1

Vacuum -10

Flow 67

EW-2

Vacuum -12

Flow 32

Notes: Vent fan VFD @ 40Hz

Operation and Maintenance Checklist
Type "C" SSDSs
Watervliet Arsenal
Watervliet, New York

Date 7/13/11

Inspector J. Wyckoff

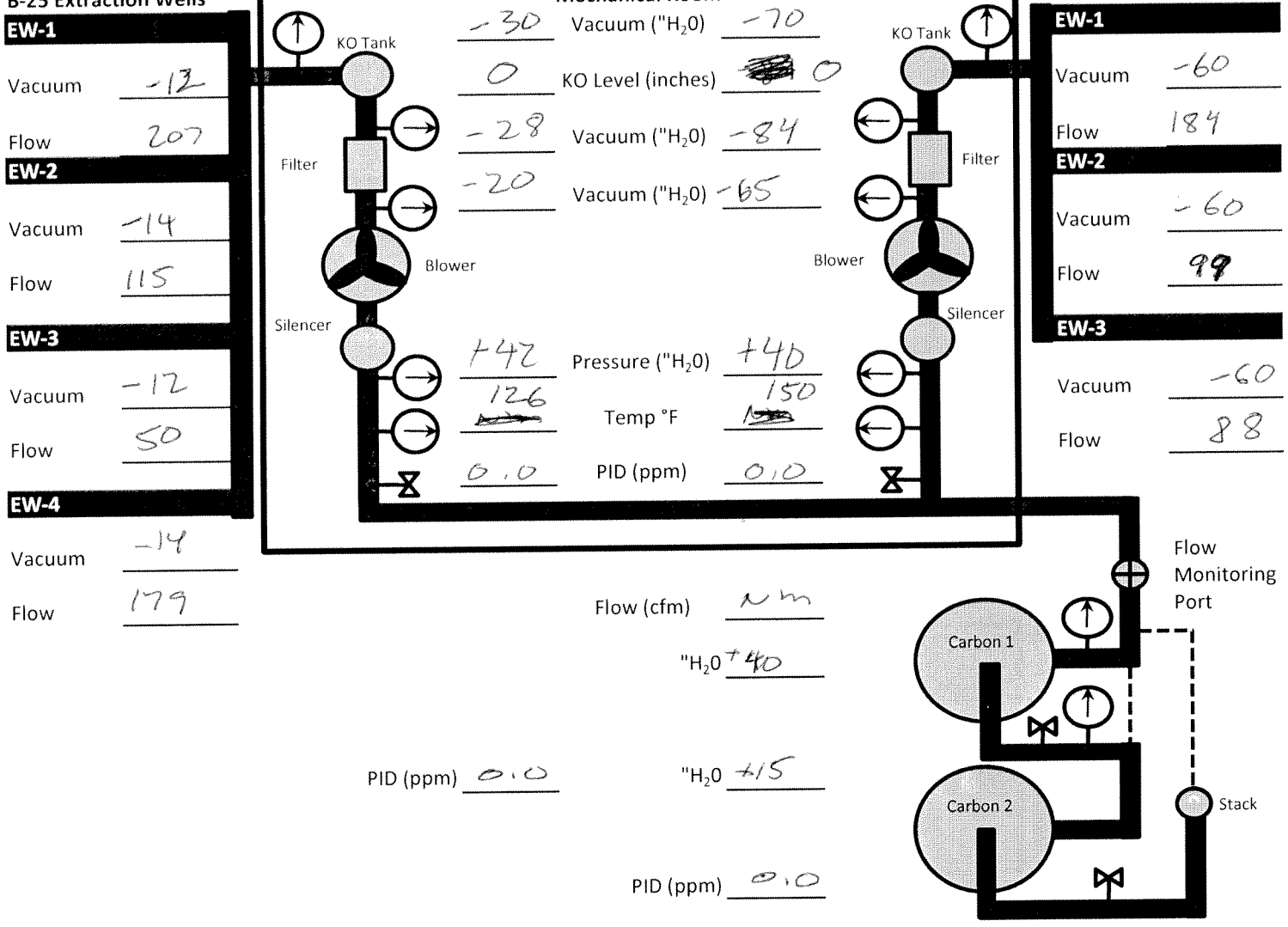
Building	Extraction Well	Extraction Well Location	Room	System On?	Vacuum ("H_2O)	Flow (cfm)
21	EW-2	Main floor, northwest side of building	134	?	Nm	Nm
		Notes: No Access to room, Can not tell if fan is running from out side. Will Re-check @ Later date				
22	EW-1	Basement, east side of building	Storage Area	Yes	Nm	Nm
		Notes: No Access to room.				
22	EW-2	Main floor, west side of building	Truck Bay	Yes	1.5	Nm
		Notes:				
120	EW-1	Main floor, south end of wood shop	Wood Shop	Yes	1.8	39
	EW-2	Main floor, north end of wood shop	Wood Shop		1.8	34
		Notes:				
121	EW-1	Main floor, southeast corner of building	Lab	Yes	1.2	51
		Notes:				
130	EW-1	Main floor, northwest corner of building	Storage Area	Yes	Nm	Nm
		Notes: No Access to Bldg.				

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 8/24/11

Inspector JRW

Building 25 System	Control Panel Room	Building 20 System
Inop	Flow (cfm)	349
	Pressure ("H_2O) 37	
	Temp (°F) 117	
7429.30	Run Time (hours)	8289.64
100	VFD Speed (%)	100
NO	Alarms?	NO



Notes: Installed new press gauge - B20, Between Filter & Blower.

Operation and Maintenance Checklist
Building 21 SSDS
Watervliet Arsenal
Watervliet, New York

Date 8/24/11

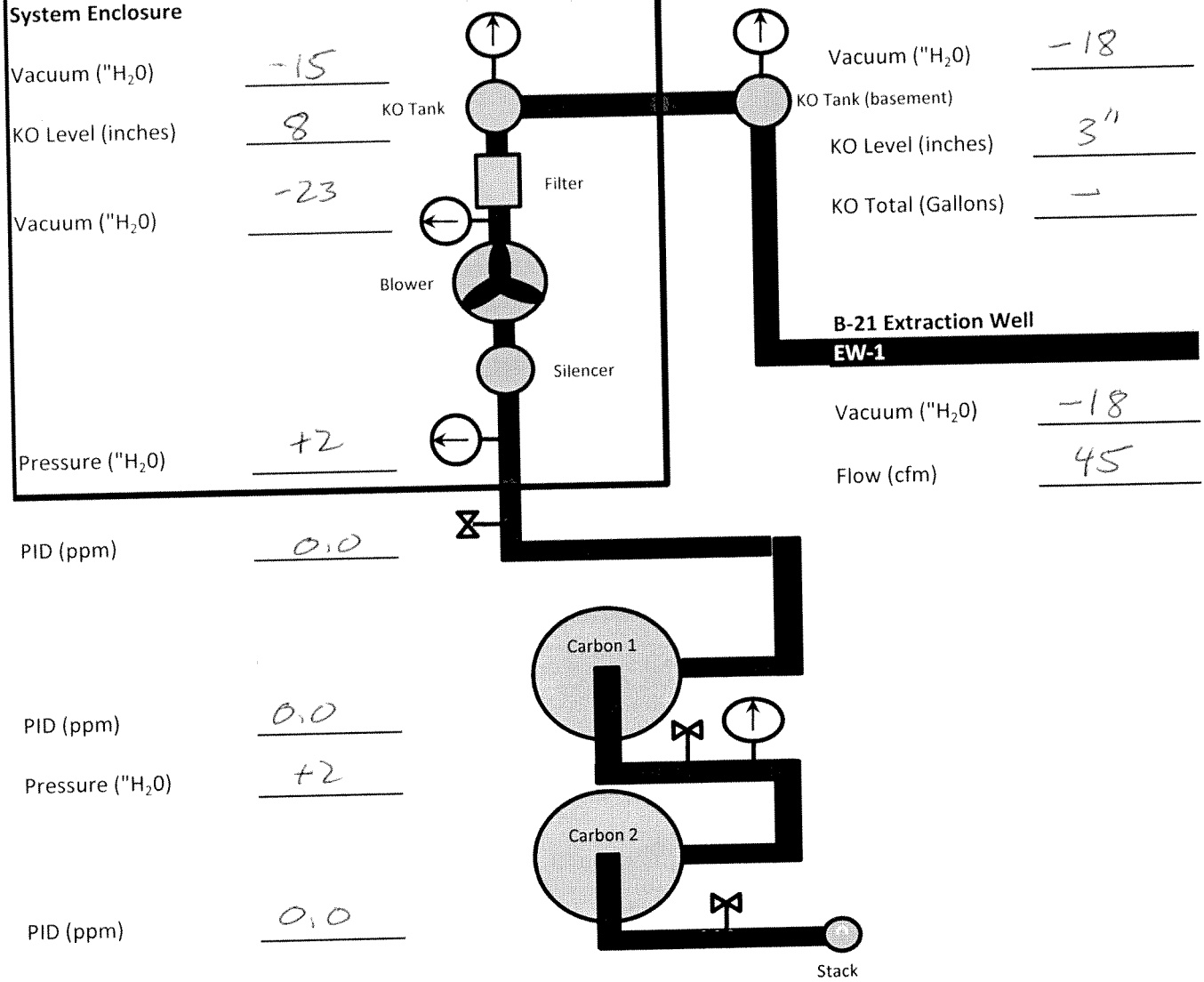
Inspector JRW.

Control Panel

Flow (cfm)	Inop
Temp (°F)	94
Run Time (hours)	5993.96
VFD Speed (%)	77%
Alarms?	Blower Fail to Stop.

System Enclosure

Vacuum ("H_2O)	-15
KO Level (inches)	8
Vacuum ("H_2O)	-23
Pressure ("H_2O)	+2



Vacuum ("H_2O)	-18
KO Level (inches)	3"
KO Total (Gallons)	—
Vacuum ("H_2O)	-18
Flow (cfm)	45
PID (ppm)	0.0
PID (ppm)	0.0
Pressure ("H_2O)	+2
PID (ppm)	0.0

- Drained KO Tanks.
- System was off - Alarm for "Blower Failed to Stop"

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 8/24/11

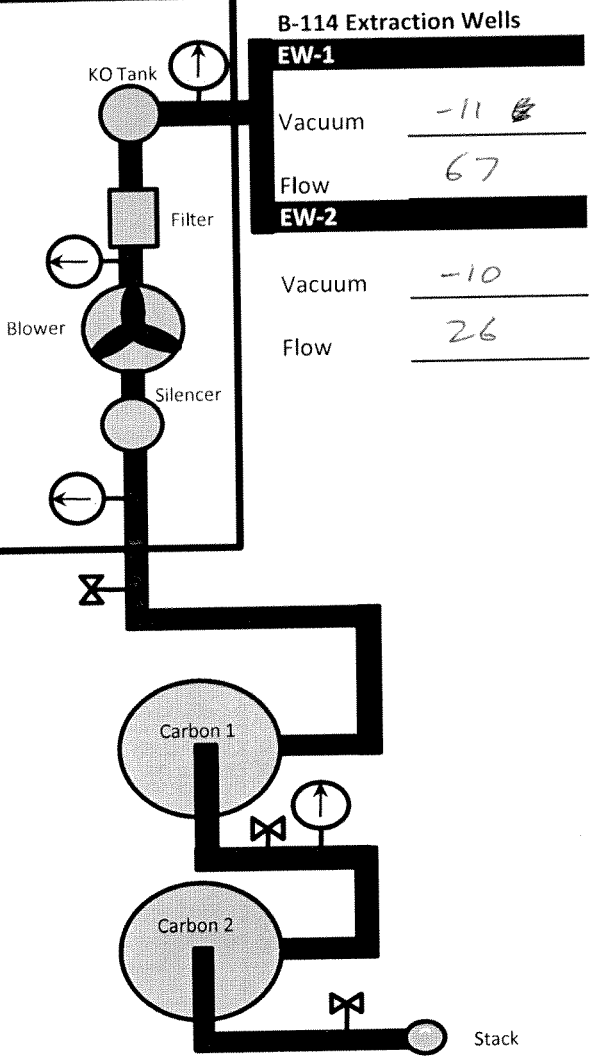
Inspector JRW

Control Panel

Flow (cfm)	78
Temp (°F)	98
Run Time (hours)	5722.87
VFD Speed (%)	100%
Alarms?	"Blower failed to Stop" Reset.

System Enclosure

Vacuum ("H_2O)	-14
KO Level (inches)	0
Vacuum ("H_2O)	-20
Pressure ("H_2O)	+3
PID (ppm)	.5
PID (ppm)	0.0
Pressure ("H_2O)	+3
PID (ppm)	0.0



B-114 Extraction Wells

EW-1

Vacuum	-11
Flow	67

EW-2

Vacuum	-10
Flow	26

Notes: System was ~~off~~. Alarm for "Blower Fail to Stop" Possible due to Power interruptions. Reset & Restart System.

Operation and Maintenance Checklist
Type "C" SSDSs
Watervliet Arsenal
Watervliet, New York

Date 8/24/11

Inspector JRW

Building	Extraction Well	Extraction Well Location	Room	System On?	Vacuum ("H_2O)	Flow (cfm)
21	EW-2	Main floor, northwest side of building	134	yes	3	8
		Notes:				
22	EW-1	Basement, east side of building	Storage Area	yes	nm	nm
		Notes:				
22	EW-2	Main floor, west side of building	Truck Bay	yes	1.5	nm
		Notes:				
120	EW-1	Main floor, south end of wood shop	Wood Shop	yes	-2	37
	EW-2	Main floor, north end of wood shop	Wood Shop		-1.8	33
		Notes:				
121	EW-1	Main floor, southeast corner of building	Lab	yes	1.2	53
		Notes:				
130	EW-1	Main floor, northeast corner of building	Storage Area	yes	nm	nm
		Notes: no Access				

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 9/27/11

Inspector J. Wyckoff

Building 25 System	Control Panel Room	Building 20 System
460	Flow (cfm)	336
	Pressure ("H_2O) 39	
	Temp (°F) 140	
8246.76	Run Time (hours)	910.17
100%	VFD Speed (%)	100%
No	Alarms?	No

B-25 Extraction Wells

EW-1	
Vacuum	-14
Flow	210
EW-2	
Vacuum	-15
Flow	103
EW-3	
Vacuum	-15
Flow	34
EW-4	
Vacuum	-15
Flow	194

Mechanical Room

-20	Vacuum ("H_2O)	-68
0	KO Level (inches)	0
-34	Vacuum ("H_2O)	-72
-34	Vacuum ("H_2O)	-88
42	Pressure ("H_2O)	40
125	Temp °F	154
NM	PID (ppm)	NM

KO Tank, Filter, Blower, Silencer

B-20 Extraction Wells

EW-1	
Vacuum	-60
Flow	172
EW-2	
Vacuum	-60
Flow	107
EW-3	
Vacuum	-60
Flow	96

Flow Monitoring Port

Flow (cfm) NM

"H_2O 32

PID (ppm) NM

"H_2O 15

PID (ppm) NM

Carbon 1

Carbon 2

Stack

Notes:

Operation and Maintenance Checklist
Building 21 SSDS
Watervliet Arsenal
Watervliet, New York

Date 9/26/11

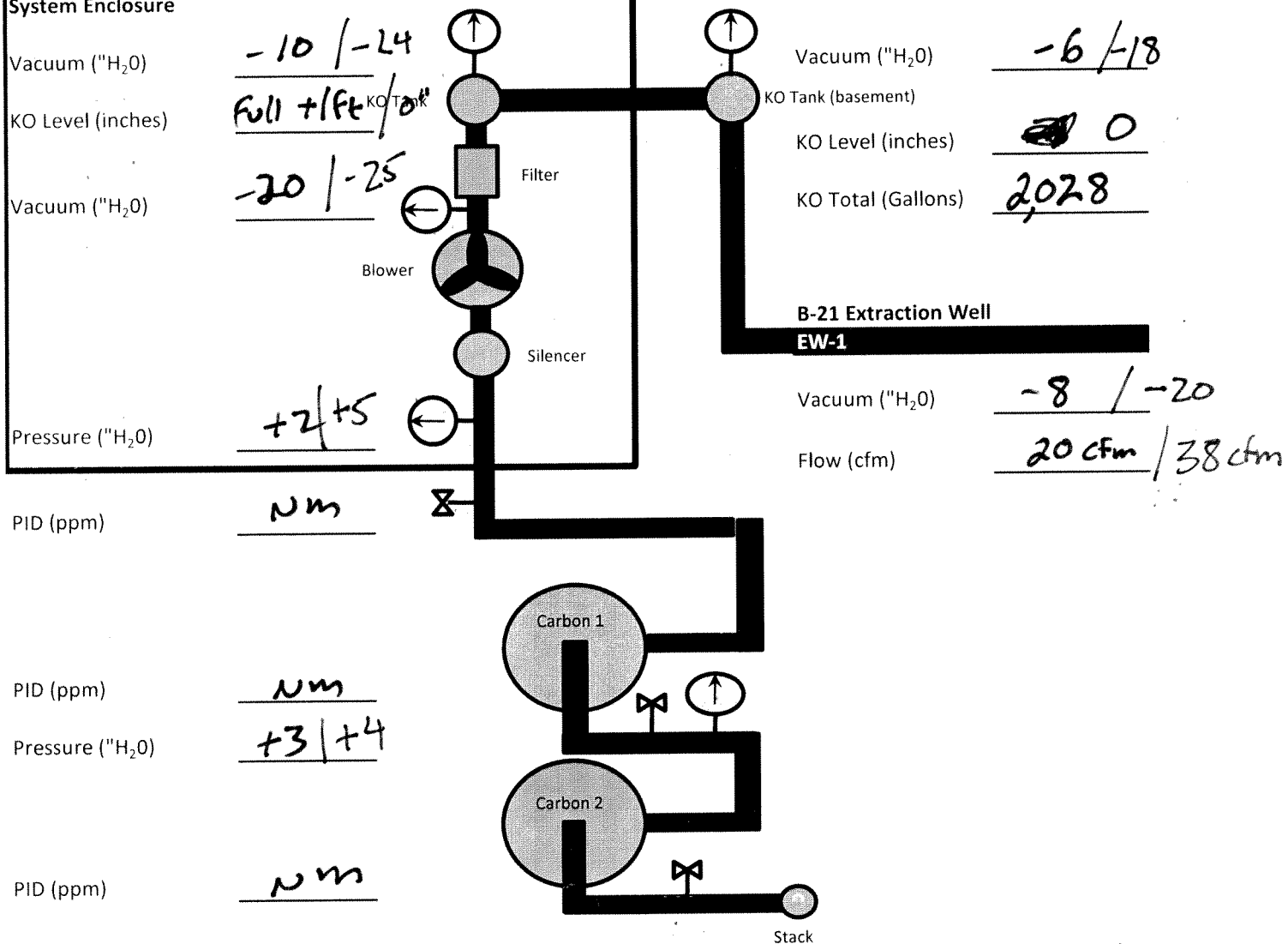
Inspector J. Wyckoff

Control Panel

Flow (cfm)	0 (Flow meter removed)
Temp (°F)	81 / 88
Run Time (hours)	6802.74 6802.99
VFD Speed (%)	49.5% 75%
Alarms?	Yes 9/23/11 KO Level High - Flow Low

System Enclosure

Vacuum ("H_2O)	-10 / -24
KO Level (inches)	Full +1ft KO Tank / 0"
Vacuum ("H_2O)	-20 / -25
Pressure ("H_2O)	+2 / +5
PID (ppm)	NM
PID (ppm)	NM
Pressure ("H_2O)	+3 / +4
PID (ppm)	NM



Vacuum ("H_2O)	-6 / -18
KO Level (inches)	0
KO Total (Gallons)	2,028
Vacuum ("H_2O)	-8 / -20
Flow (cfm)	20 cfm / 38 cfm

1220 - Shut down system - Drain KO tank - NOTE High Level @ 8-8.5"

NOTE: Basement door was propped open

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 9/27/11

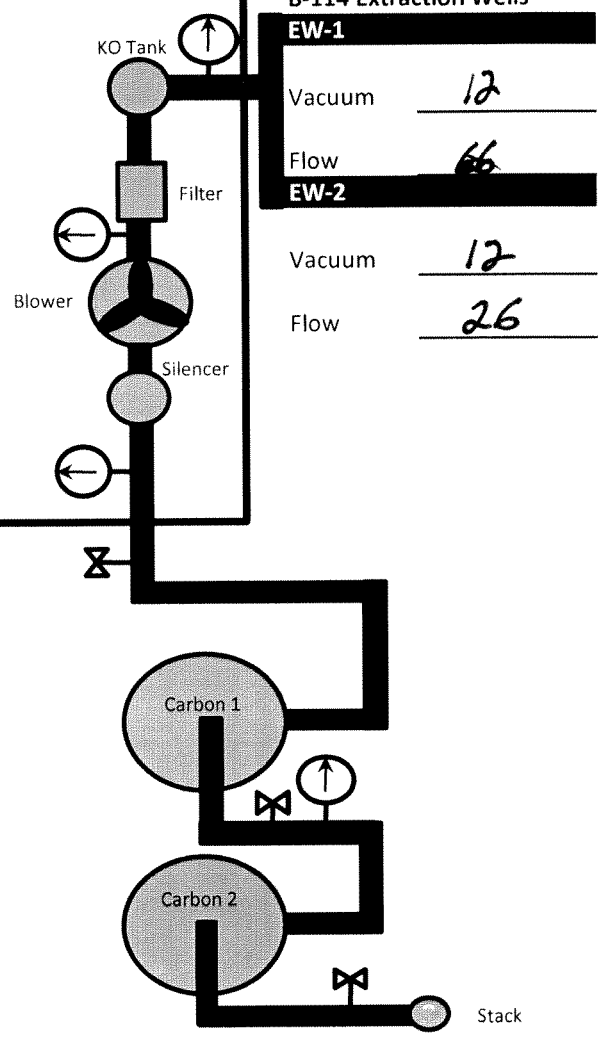
Inspector J. Wyckoff

Control Panel

Flow (cfm)	77
Temp (°F)	102
Run Time (hours)	6536.18
VFD Speed (%)	100%
Alarms?	NO

System Enclosure

Vacuum ("H_2O)	-14
KO Level (inches)	0
Vacuum ("H_2O)	-20
Pressure ("H_2O)	+3
PID (ppm)	NM
PID (ppm)	NM
Pressure ("H_2O)	+2
PID (ppm)	NM



B-114 Extraction Wells

EW-1	
Vacuum	12
Flow	66
EW-2	
Vacuum	12
Flow	26

Notes: - Vent Fan VFD @ 40 HZ
- NOTE: 2 carbon vessels Available For exchange.

Operation and Maintenance Checklist
Type "C" SSDSs
Watervliet Arsenal
Watervliet, New York

Date 9/27/11

Inspector J. Wyckoff

Building	Extraction Well	Extraction Well Location	Room	System On?	Vacuum ("H_2O)	Flow (cfm)
21	EW-2	Main floor, northwest side of building	134	Yes	Nm	Nm
		Notes: No Access to Room				
22	EW-1	Basement, east side of building.	Storage Area	Yes	2.2	20
		Notes:				
22	EW-2	Main floor, west side of building	Truck Bay	Yes	1.5	63
		Notes:				
120	EW-1	Main floor, south end of wood shop	Wood Shop	Yes	2	36
	EW-2	Main floor, north end of wood shop	Wood Shop		1.8	34
		Notes:				
121	EW-1	Main floor, southeast corner of building	Lab	Yes	1.5	53
		Notes:				
130	EW-1	Main floor, northeast corner of building	Storage Area	Yes	Nm	Nm
		Notes: No Access to Building				

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 10/25/11

Inspector JRW

Building 25 System	Control Panel Room	Building 20 System
463	Flow (cfm)	353
	Pressure ("H_2O) 40	
	Temp (°F) 121	
8909.64	Run Time (hours)	9769.98
100	VFD Speed (%)	100
N	Alarms?	N

B-25 Extraction Wells

EW-1	
Vacuum	-15
Flow	Nm
EW-2	
Vacuum	-17
Flow	Nm
EW-3	
Vacuum	-17
Flow	Nm
EW-4	
Vacuum	-16
Flow	Nm

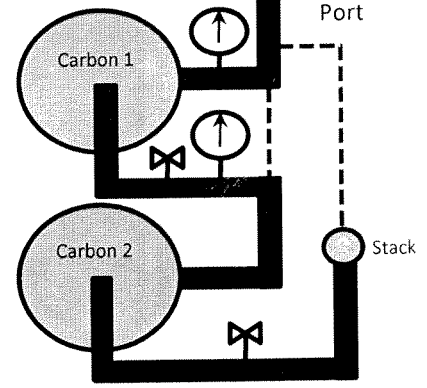
Mechanical Room

-22	Vacuum ("H_2O)	-66
0	KO Level (inches)	0
-35	Vacuum ("H_2O)	-72
-35	Vacuum ("H_2O)	-90
42	Pressure ("H_2O)	40
120	Temp °F	148
Nm	PID (ppm)	Nm

KO Tank, Filter, Blower, Silencer

B-20 Extraction Wells

EW-1	
Vacuum	-58
Flow	Nm
EW-2	
Vacuum	-60
Flow	Nm
EW-3	
Vacuum	-60
Flow	Nm



Flow (cfm) Nm

"H_2O +34

PID (ppm) Nm

"H_2O +16

PID (ppm) Nm

Notes: - NO Flow/PID measurements.

Operation and Maintenance Checklist
Building 21 SSDS
Watervliet Arsenal
Watervliet, New York

Date 10/25/11

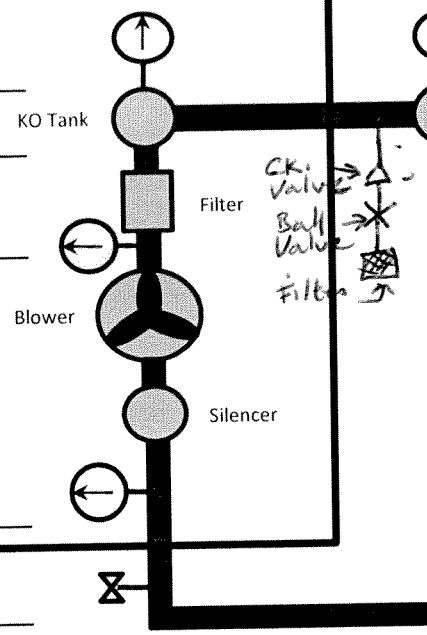
Inspector JRW

Control Panel

Flow (cfm)	Meter Inop
Temp (°F)	92
Run Time (hours)	7470.78
VFD Speed (%)	100%
Alarms?	No

System Enclosure

Vacuum ("H_2O)	-16
KO Level (inches)	3
Vacuum ("H_2O)	-22
Pressure ("H_2O)	+12

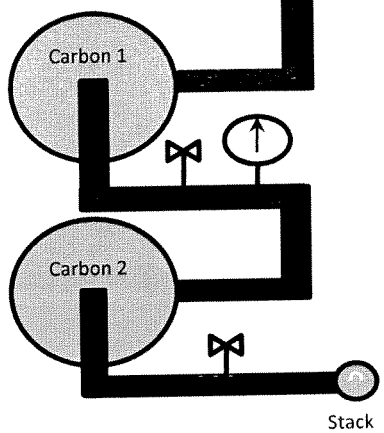


Vacuum ("H_2O)	-15
KO Tank (basement)	
KO Level (inches)	0
KO Total (Gallons)	2,327

B-21 Extraction Well
EW-1

Vacuum ("H_2O)	-12
Flow (cfm)	~~+6~~ Nm

PID (ppm)	Nm
PID (ppm)	Nm
Pressure ("H_2O)	+7
PID (ppm)	Nm



General Controls Reprogramed PLC To have system shut down w/ high KO Alarm.
Installed make-up-air valve in basement before KO Tank.
Drain KO Tank in enclosure. No Flow/PID measurements.

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 10/25/11

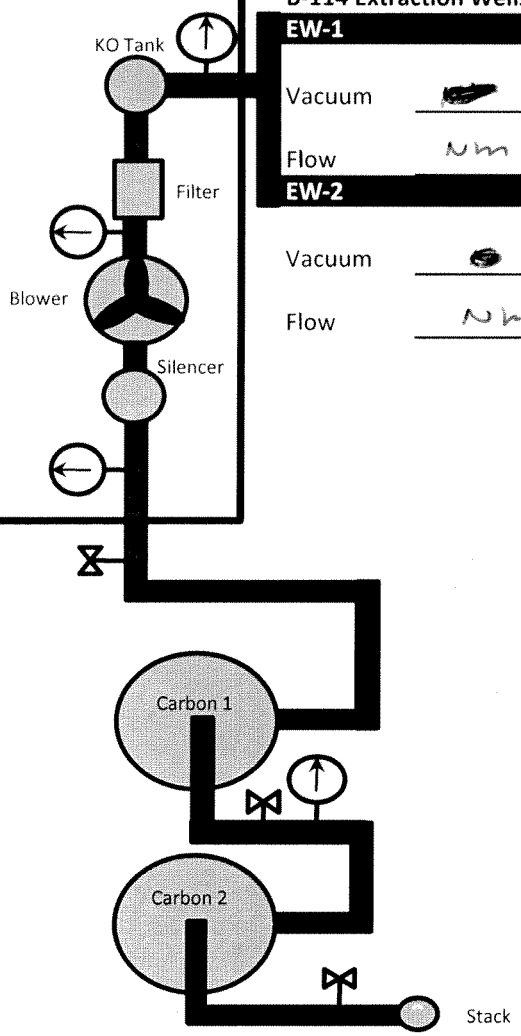
Inspector JRW

Control Panel

Flow (cfm)	75
Temp (°F)	77
Run Time (hours)	7203.22
VFD Speed (%)	100%
Alarms?	No

System Enclosure

Vacuum ("H_2O)	-15
KO Level (inches)	2"
Vacuum ("H_2O)	-22
Pressure ("H_2O)	+2
PID (ppm)	NM
PID (ppm)	NM
Pressure ("H_2O)	2.5
PID (ppm)	NM



B-114 Extraction Wells

EW-1	
Vacuum	12
Flow	NM
EW-2	
Vacuum	12
Flow	NM

Notes: GCS reprogrammed PLC for propane KO level alarm
Turned off VENT fan for enclosure.
NO Flow/ PID measurements

Operation and Maintenance Checklist
Type "C" SSDSs
Watervliet Arsenal
Watervliet, New York

Date 10/25/11

Inspector JRW

Building	Extraction Well	Extraction Well Location	Room	System On?	Vacuum ("H_2O)	Flow (cfm)
21	EW-2	Main floor, northwest side of building	134	Yes	-3"	NM
		Notes:				
22	EW-1	Basement, east side of building	Storage Area	YES	NM	NM
		Notes:				
22	EW-2	Main floor, west side of building	Truck Bay	Yes	-2"	NM
		Notes: Drained water from condensate Line				
120	EW-1	Main floor, south end of wood shop	Wood Shop	yes	-2"	NM
	EW-2	Main floor, north end of wood shop	Wood Shop		-2"	NM
		Notes:				
121	EW-1	Main floor, southeast corner of building	Lab	?		
		Notes: Door Locked - NO Access				
130	EW-1	Main floor, northeast corner of building	Storage Area	NO		
		Notes: Motor for fan not running. Will need ladder to diagnose 10/28/11 - Inspected system. NO Power @ outlet. Accessed Bldg w/ JoAnn Kellogg Found circuit breaker was in off position. Turned Breaker on - System Function Normal.				

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

Date 11/17/11

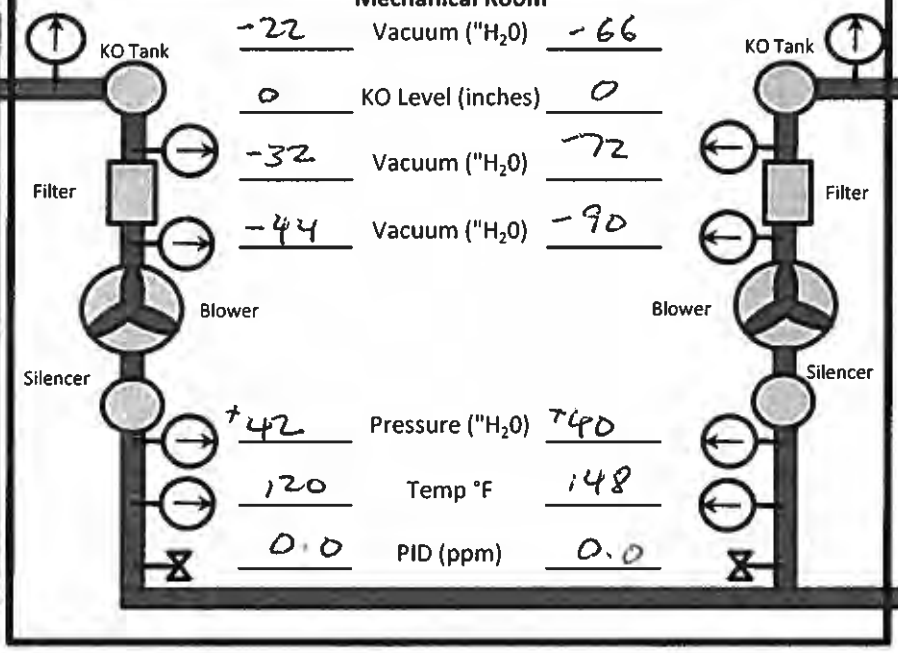
Inspector JEW, AW

Building 25 System	Control Panel Room	Building 20 System
460	Flow (cfm)	349
	Pressure ("H_2O) 38	
	Temp (°F) 121	
9461.03	Run Time (hours)	10321.40
100	VFD Speed (%)	100
N	Alarms?	N

B-25 Extraction Wells

EW-1	
Vacuum	-20/-16
Flow	185/222
EW-2	
Vacuum	-25/-16
Flow	100/86
EW-3	
Vacuum	-25/-17
Flow	30/21
EW-4	
Vacuum	-25/-14
Flow	185/186

Mechanical Room



-22	Vacuum ("H_2O)	-66
0	KO Level (inches)	0
-32	Vacuum ("H_2O)	-72
-44	Vacuum ("H_2O)	-90
+42	Pressure ("H_2O)	+40
120	Temp °F	148
0.0	PID (ppm)	0.0

B-20 Extraction Wells

EW-1	
Vacuum	-60
Flow	160
EW-2	
Vacuum	-60
Flow	87
EW-3	
Vacuum	-60
Flow	89

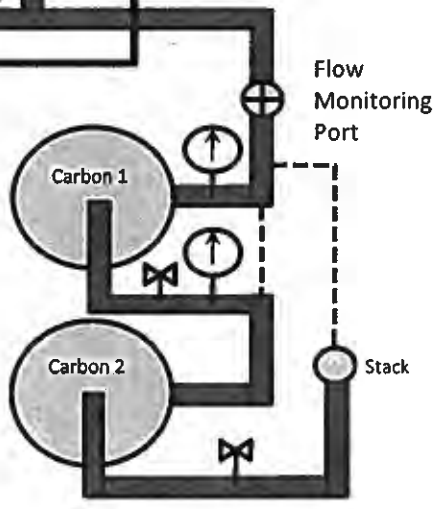
Flow (cfm) NM

"H_2O +34

PID (ppm) 0.0

"H_2O +14

PID (ppm) 0.0



Notes: Collect Pre/post carbon effluent samples.
Adjusted flows after carbon sampling (B25)

Operation and Maintenance Checklist
Building 21 SSDS
Watervliet Arsenal
Watervliet, New York

Date 11/17/11

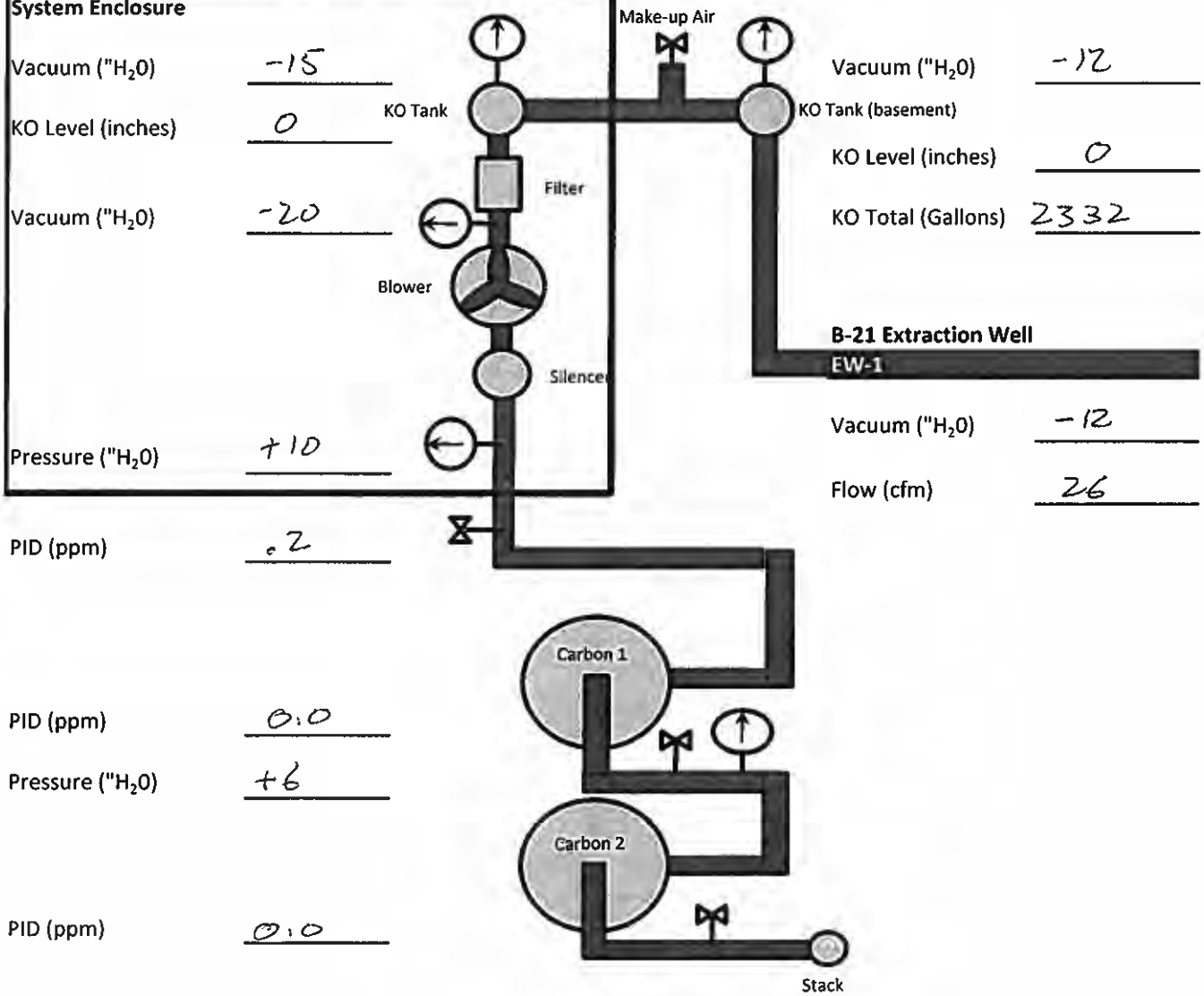
Inspector JRW, AW

Control Panel

Flow (cfm)	Inop.
Temp (°F)	98
Run Time (hours)	8020.76
VFD Speed (%)	100%
Alarms?	No

System Enclosure

Vacuum ("H_2O)	-15
KO Level (inches)	0
Vacuum ("H_2O)	-20
Pressure ("H_2O)	+10
PID (ppm)	.2
PID (ppm)	0.0
Pressure ("H_2O)	+6
PID (ppm)	0.0



Vacuum ("H_2O)	-12
KO Level (inches)	0
KO Total (Gallons)	2332
Vacuum ("H_2O)	-12
Flow (cfm)	26

Collect pre/post carbon effluent samples.
Measure flow @ discharge ≈ 100 cfm.

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 11/17/11

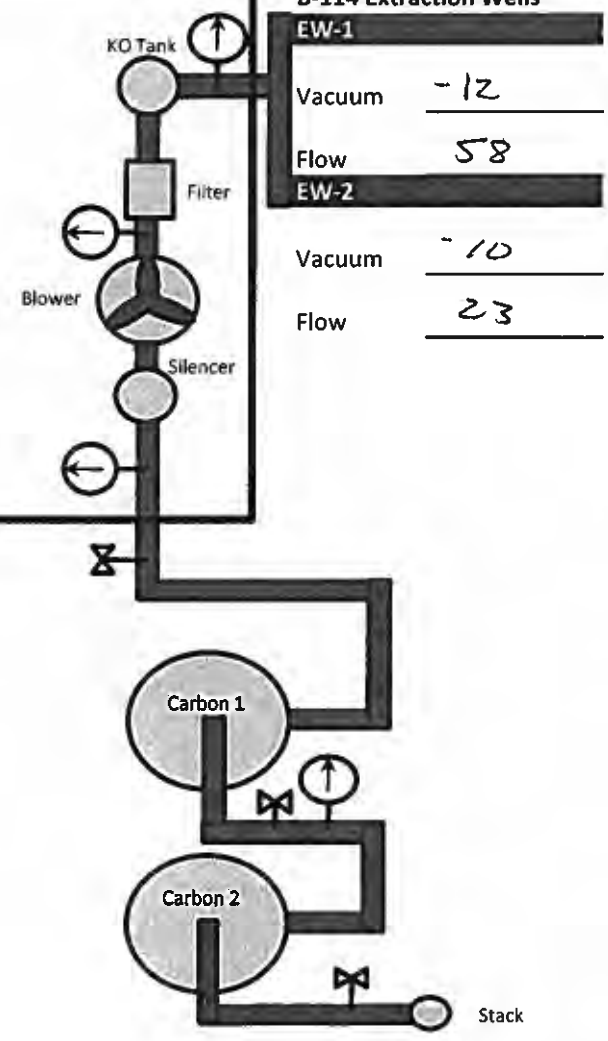
Inspector JLW, AW

Control Panel

Flow (cfm)	75
Temp (°F)	89
Run Time (hours)	7752.36
VFD Speed (%)	96%
Alarms?	NO

System Enclosure

Vacuum ("H_2O)	-13
KO Level (inches)	6"
Vacuum ("H_2O)	19
Pressure ("H_2O)	+4
PID (ppm)	0.2
PID (ppm)	0.10
Pressure ("H_2O)	+4
PID (ppm)	0.0



B-114 Extraction Wells

EW-1	
Vacuum	-12
Flow	58
EW-2	
Vacuum	-10
Flow	23

Notes: Collect Pre/POST carbon effluent samples.
Drain KO Tank.

Operation and Maintenance Checklist
Type "C" SSDSs
Watervliet Arsenal
Watervliet, New York

Date 11/17/11

Inspector JRW / AW.

Building	Extraction Well	Extraction Well Location	Room	System On?	Vacuum ("H_2O)	Flow (cfm)
21	EW-2	Main floor, northwest side of building	134	Yes	3	Nm
		Notes: Extraction well was built into new closet. No Access to Flow mensuring Port.				
22	EW-1	Basement, east side of building	Storage Area	Yes	2.1	9
		Notes:				
22	EW-2	Main floor, west side of building	Truck Bay	Yes	1.5	57
		Notes:				
120	EW-1	Main floor, south end of wood shop	Wood Shop	Yes	2.0	17.3
	EW-2	Main floor, north end of wood shop	Wood Shop		2.0	32.2
		Notes:				
121	EW-1	Main floor, southeast corner of building	Lab	Yes	1.5	24.6
		Notes:				
130	EW-1	Main floor, northeast corner of building	Storage Area	Yes	Nm	Nm
		Notes: No Access.				

Operation and Maintenance Checklist
Building 20/25 SSDS
Watervliet Arsenal
Watervliet, New York

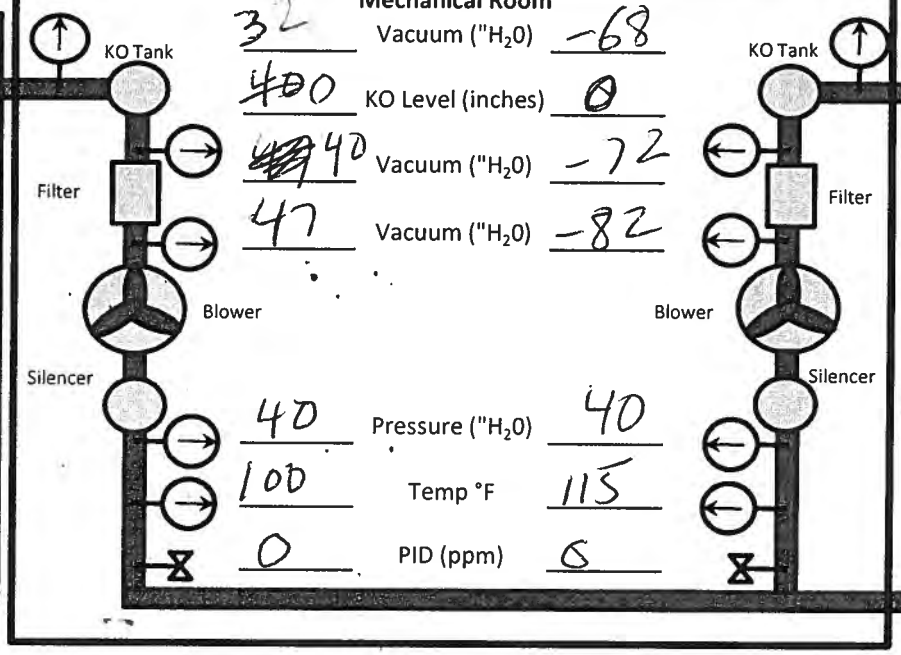
Date 12/29/11

Inspector JHW/SB

Building 25 System	Control Panel Room	Building 20 System
463	Flow (cfm)	356
	Pressure ("H_2O) 39	
	Temp (°F) 101	
10462.60	Run Time (hours)	13323.00
100%	VFD Speed (%)	100%
N	Alarms?	N

B-25 Extraction Wells

EW-1	
Vacuum	185
Flow	-26
EW-2	
Vacuum	95
Flow	-26
EW-3	
Vacuum	17
Flow	-27
EW-4	
Vacuum	-26
Flow	180



Mechanical Room

32	Vacuum ("H_2O)	-68	
~~400~~	KO Level (inches)	0	
~~40~~ 40	Vacuum ("H_2O)	-72	
47	Vacuum ("H_2O)	-82	
40	Pressure ("H_2O)	40	
100	Temp °F	115	
0	PID (ppm)	6	

B-20 Extraction Wells

EW-1	
Vacuum	-62
Flow	136
EW-2	
Vacuum	-62
Flow	74
EW-3	
Vacuum	-62
Flow	88

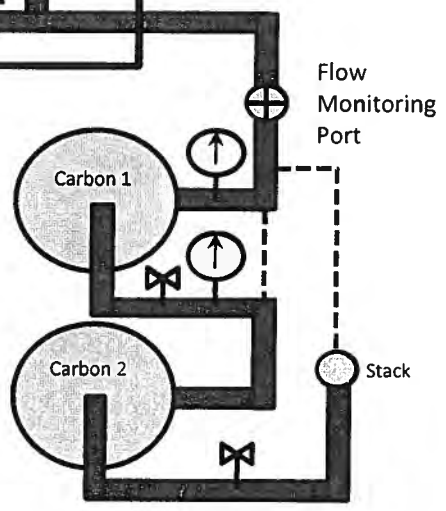
Flow (cfm) NM

"H_2O 32

PID (ppm) 0

"H_2O 14

PID (ppm) 0



Notes: Changed B1 and B2 drive oil in both units.

Operation and Maintenance Checklist
Building 21 SSDS
Watervliet Arsenal
Watervliet, New York

Date 12/29/11

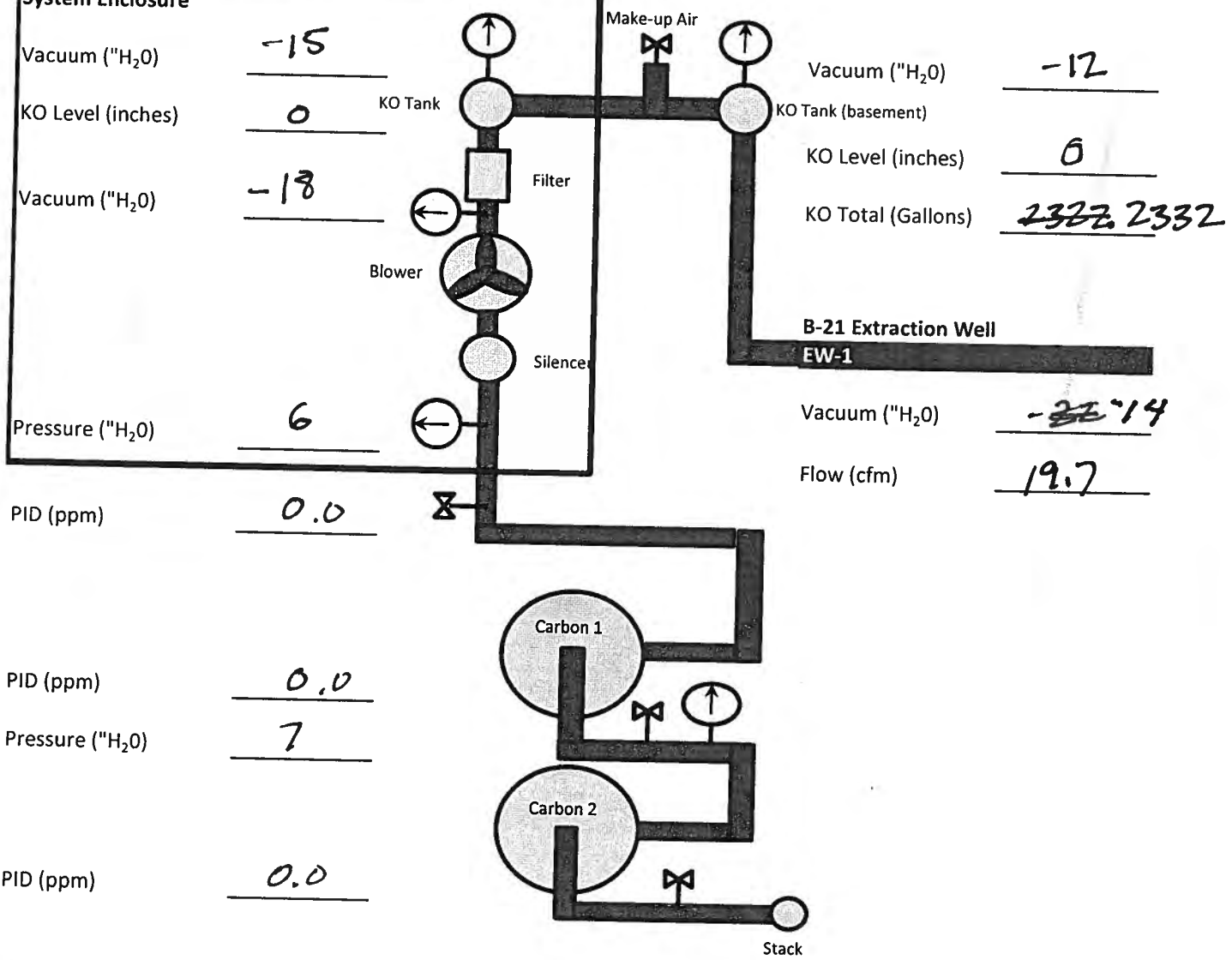
Inspector JLW/SB

Control Panel

Flow (cfm)	Inop
Temp (°F)	84
Run Time (hours)	9823.68
VFD Speed (%)	100%
Alarms?	NO

System Enclosure

Vacuum ("H_2O)	-15
KO Level (inches)	0
Vacuum ("H_2O)	-18
Pressure ("H_2O)	6
PID (ppm)	0.0



Vacuum ("H_2O)	-12
KO Level (inches)	0
KO Total (Gallons)	~~2327~~ 2332
Vacuum ("H_2O)	~~-32~~ -14
Flow (cfm)	19.7

PID (ppm)	0.0
Pressure ("H_2O)	7
PID (ppm)	0.0

Operation and Maintenance Checklist
Building 114 SSDS
Watervliet Arsenal
Watervliet, New York

Date 12/29/11

Inspector JEW/SB

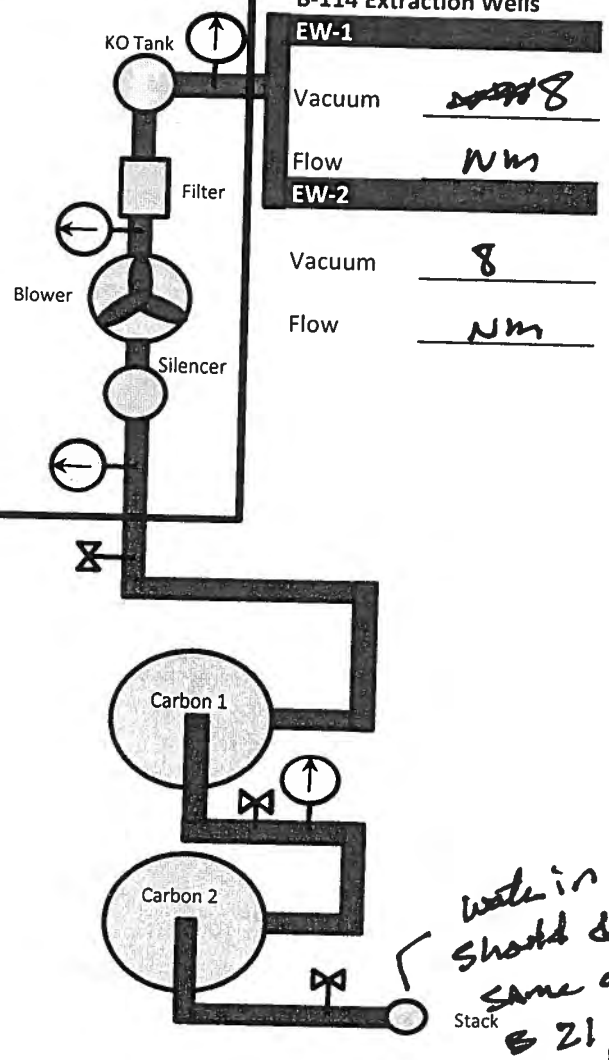
1/6/12

Control Panel

Flow (cfm)	72
Temp (°F)	81
Run Time (hours)	862303
VFD Speed (%)	100% NO (1-6-12)
Alarms?	Y High KO Level 9/18/11

System Enclosure

Vacuum ("H_2O)	-12
KO Level (inches)	6
Vacuum ("H_2O)	-22
Pressure ("H_2O)	+4
PID (ppm)	NM
PID (ppm)	NM
Pressure ("H_2O)	+7
PID (ppm)	NM

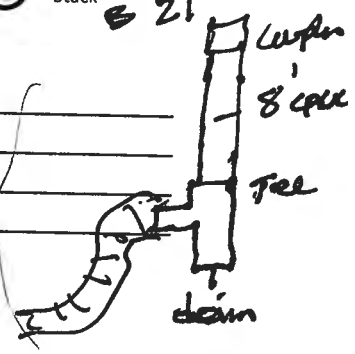


B-114 Extraction Wells

EW-1	
Vacuum	8
Flow	NM
EW-2	
Vacuum	8
Flow	NM

Notes: High KO Level - System off. KO TANK Frozen

4" Line, Tee, 4/2" Thread adp Bring Ladder



Operation and Maintenance Checklist
Type "C" SSDSs
Watervliet Arsenal
Watervliet, New York

Date 12/29/11

Inspector JRW | SB

Building	Extraction Well	Extraction Well Location	Room	System On?	Vacuum ("H_20)	Flow (cfm)
21	EW-2	Main floor, northwest side of building	134	Yes	NM	NM
		Notes: NO Access				
22	EW-1	Basement, east side of building	Storage Area	yes	2	NM
		Notes:				
22	EW-2	Main floor, west side of building	Truck Bay	yes	2	NM
		Notes:				
120	EW-1	Main floor, south end of wood shop	Wood Shop	yes	-2	15.9
	EW-2	Main floor, north end of wood shop	Wood Shop		-2	31.2
		Notes:				
121	EW-1	Main floor, southeast corner of building	Lab	yes	1.5	47.9
		Notes:				
130	EW-1	Main floor, northeast corner of building	Storage Area	yes	NM	NM
		Notes: NO Access				

ARCADIS MALCOLM PIRNIE

Appendix B

Analytical Laboratory Reporting Forms

Air Toxics LTD.
Laboratory Services Since 1989

4/12/2011
Mr. Andy Vitolins
Malcolm Pirnie
855 Route 146
Suite 210
Clifton Park NY 12065

Project Name: WVA
Project #: 2118163
Workorder #: 1104026

Dear Mr. Andy Vitolins

The following report includes the data for the above referenced project for sample(s) received on 4/1/2011 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

Air Toxics LTD.
Laboratory Services Since 1989

WORK ORDER #: 1104026

Work Order Summary

CLIENT:	Mr. Andy Vitolins Malcolm Pirnie 855 Route 146 Suite 210 Clifton Park, NY 12065	**BILL TO:**	Ms. Accounts Payable Malcolm Pirnie P.O. Box 1240 White Plains, NY 10602-1240
PHONE:	518-250-7300	**P.O. #**	2118163
FAX:	518-250-7301	**PROJECT #**	2118163 WVA
DATE RECEIVED:	04/01/2011	**CONTACT:**	Ausha Scott
DATE COMPLETED:	04/12/2011		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	B114-Post-C	Modified TO-15	4.0 "Hg	5 psi
02A	B114-Pre-C	Modified TO-15	2.0 "Hg	5 psi
03A	B20-Pre-C	Modified TO-15	2.0 "Hg	5 psi
04A	B25-Pre-C	Modified TO-15	1.5 "Hg	5 psi
05A	B20/25-Post-C	Modified TO-15	10.5 "Hg	5 psi
06A	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA
08AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Linda D. Frumarn DATE: 04/12/11

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763,
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/11
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Malcolm Pirnie
Workorder# 1104026

Five 6 Liter Summa Canister samples were received on April 01, 2011. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample B114-Pre-C due to the presence of high level non-target species.

All Quality Control Limit exceedences and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit.
UJ- Non-detected compound associated with low bias in the CCV and/or LCS.
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Air Toxics LTD.
Laboratory Services Since 1989

Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: B114-Post-C

Lab ID#: 1104026-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.78	1.7	3.1	6.9

Client Sample ID: B114-Pre-C

Lab ID#: 1104026-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	2.9	12	11	49
Trichloroethene	2.9	110	15	580
Tetrachloroethene	2.9	250	20	1700

Client Sample ID: B20-Pre-C

Lab ID#: 1104026-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	0.72	11	3.9	59
Tetrachloroethene	0.72	2.3	4.9	16

Client Sample ID: B25-Pre-C

Lab ID#: 1104026-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.70	1.5	2.8	6.0
1,1,1-Trichloroethane	0.70	3.1	3.8	17
Trichloroethene	0.70	120	3.8	630
Tetrachloroethene	0.70	2.9	4.8	20

Client Sample ID: B20/25-Post-C

Lab ID#: 1104026-05A

No Detections Were Found.

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B114-Post-C

Lab ID#: 1104026-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p040717**	**Date of Collection: 3/30/11 2:38:00 PM**	
Dil. Factor:	**1.55**	**Date of Analysis: 4/7/11 06:55 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	3.1	Not Detected	6.4	Not Detected
Vinyl Chloride	0.78	Not Detected	2.0	Not Detected
Chloroethane	3.1	Not Detected	8.2	Not Detected
1,1-Dichloroethene	0.78	Not Detected	3.1	Not Detected
trans-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
1,1-Dichloroethane	0.78	Not Detected	3.1	Not Detected
cis-1,2-Dichloroethene	0.78	1.7	3.1	6.9
1,1,1-Trichloroethane	0.78	Not Detected	4.2	Not Detected
Carbon Tetrachloride	0.78	Not Detected	4.9	Not Detected
1,2-Dichloroethane	0.78	Not Detected	3.1	Not Detected
Trichloroethene	0.78	Not Detected	4.2	Not Detected
1,1,2-Trichloroethane	0.78	Not Detected	4.2	Not Detected
Tetrachloroethene	0.78	Not Detected	5.2	Not Detected
Chlorobenzene	0.78	Not Detected	3.6	Not Detected
1,1,2,2-Tetrachloroethane	0.78	Not Detected	5.3	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	94	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B114-Pre-C

Lab ID#: 1104026-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p040724**	**Date of Collection:**	**3/30/11 3:10:00 PM**
Dil. Factor:	**5.76**	**Date of Analysis:**	**4/7/11 10:54 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	12	Not Detected	24	Not Detected
Vinyl Chloride	2.9	Not Detected	7.4	Not Detected
Chloroethane	12	Not Detected	30	Not Detected
1,1-Dichloroethene	2.9	Not Detected	11	Not Detected
trans-1,2-Dichloroethene	2.9	Not Detected	11	Not Detected
1,1-Dichloroethane	2.9	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	2.9	12	11	49
1,1,1-Trichloroethane	2.9	Not Detected	16	Not Detected
Carbon Tetrachloride	2.9	Not Detected	18	Not Detected
1,2-Dichloroethane	2.9	Not Detected	12	Not Detected
Trichloroethene	2.9	110	15	580
1,1,2-Trichloroethane	2.9	Not Detected	16	Not Detected
Tetrachloroethene	2.9	250	20	1700
Chlorobenzene	2.9	Not Detected	13	Not Detected
1,1,2,2-Tetrachloroethane	2.9	Not Detected	20	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B20-Pre-C

Lab ID#: 1104026-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p040721**	**Date of Collection: 3/30/11 4:16:00 PM**	
Dil. Factor:	**1.44**	**Date of Analysis: 4/7/11 09:40 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.9	Not Detected	5.9	Not Detected
Vinyl Chloride	0.72	Not Detected	1.8	Not Detected
Chloroethane	2.9	Not Detected	7.6	Not Detected
1,1-Dichloroethene	0.72	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.72	Not Detected	2.8	Not Detected
1,1-Dichloroethane	0.72	Not Detected	2.9	Not Detected
cis-1,2-Dichloroethene	0.72	Not Detected	2.8	Not Detected
1,1,1-Trichloroethane	0.72	Not Detected	3.9	Not Detected
Carbon Tetrachloride	0.72	Not Detected	4.5	Not Detected
1,2-Dichloroethane	0.72	Not Detected	2.9	Not Detected
Trichloroethene	0.72	11	3.9	59
1,1,2-Trichloroethane	0.72	Not Detected	3.9	Not Detected
Tetrachloroethene	0.72	2.3	4.9	16
Chlorobenzene	0.72	Not Detected	3.3	Not Detected
1,1,2,2-Tetrachloroethane	0.72	Not Detected	4.9	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	94	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B25-Pre-C

Lab ID#: 1104026-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p040722**	**Date of Collection: 3/30/11 4:21:00 PM**	
Dil. Factor:	**1.41**	**Date of Analysis: 4/7/11 10:00 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.8	Not Detected	5.8	Not Detected
Vinyl Chloride	0.70	Not Detected	1.8	Not Detected
Chloroethane	2.8	Not Detected	7.4	Not Detected
1,1-Dichloroethene	0.70	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.70	Not Detected	2.8	Not Detected
1,1-Dichloroethane	0.70	Not Detected	2.8	Not Detected
cis-1,2-Dichloroethene	0.70	1.5	2.8	6.0
1,1,1-Trichloroethane	0.70	3.1	3.8	17
Carbon Tetrachloride	0.70	Not Detected	4.4	Not Detected
1,2-Dichloroethane	0.70	Not Detected	2.8	Not Detected
Trichloroethene	0.70	120	3.8	630
1,1,2-Trichloroethane	0.70	Not Detected	3.8	Not Detected
Tetrachloroethene	0.70	2.9	4.8	20
Chlorobenzene	0.70	Not Detected	3.2	Not Detected
1,1,2,2-Tetrachloroethane	0.70	Not Detected	4.8	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B20/25-Post-C

Lab ID#: 1104026-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p040723**	**Date of Collection: 3/30/11 5:10:00 PM**	
Dil. Factor:	**2.06**	**Date of Analysis: 4/7/11 10:22 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	4.1	Not Detected	8.5	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
Chloroethane	4.1	Not Detected	11	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.2	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
1,1,1-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.5	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.2	Not Detected
Trichloroethene	1.0	Not Detected	5.5	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Tetrachloroethene	1.0	Not Detected	7.0	Not Detected
Chlorobenzene	1.0	Not Detected	4.7	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	7.1	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	97	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1104026-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p040708**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/7/11 12:27 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	97	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1104026-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p040702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/7/11 07:31 AM**	

Compound	%Recovery
Chloromethane	110
Vinyl Chloride	102
Chloroethane	102
1,1-Dichloroethene	102
trans-1,2-Dichloroethene	104
1,1-Dichloroethane	104
cis-1,2-Dichloroethene	104
1,1,1-Trichloroethane	105
Carbon Tetrachloride	104
1,2-Dichloroethane	108
Trichloroethene	104
1,1,2-Trichloroethane	106
Tetrachloroethene	103
Chlorobenzene	103
1,1,2,2-Tetrachloroethane	105

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1104026-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p040703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/7/11 08:26 AM**	

Compound	%Recovery
Chloromethane	132 Q
Vinyl Chloride	117
Chloroethane	117
1,1-Dichloroethene	119
trans-1,2-Dichloroethene	126
1,1-Dichloroethane	116
cis-1,2-Dichloroethene	114
1,1,1-Trichloroethane	117
Carbon Tetrachloride	116
1,2-Dichloroethane	116
Trichloroethene	111
1,1,2-Trichloroethane	110
Tetrachloroethene	108
Chlorobenzene	110
1,1,2,2-Tetrachloroethane	114

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1104026-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p040704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/7/11 08:44 AM**	

Compound	%Recovery
Chloromethane	130
Vinyl Chloride	115
Chloroethane	112
1,1-Dichloroethene	120
trans-1,2-Dichloroethene	124
1,1-Dichloroethane	115
cis-1,2-Dichloroethene	112
1,1,1-Trichloroethane	118
Carbon Tetrachloride	118
1,2-Dichloroethane	117
Trichloroethene	113
1,1,2-Trichloroethane	111
Tetrachloroethene	111
Chlorobenzene	112
1,1,2,2-Tetrachloroethane	116

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

12/7/2011
Mr. Andy Vitolins
ARCADIS, Inc. (Malcolm Pirnie)
855 Route 146
Suite 210
Clifton Park NY 12065

Project Name: WVA ICM
Project #: 02118163.0000
Workorder #: 1111355

Dear Mr. Andy Vitolins

The following report includes the data for the above referenced project for sample(s) received on 11/18/2011 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

Air Toxics LTD.
Laboratory Services Since 1989

WORK ORDER #: 1111355

Work Order Summary

CLIENT:	Mr. Andy Vitolins ARCADIS, Inc. (Malcolm Pirnie) 855 Route 146 Suite 210 Clifton Park, NY 12065	**BILL TO:**	Accounts Payable ARCADIS, Inc. 630 Plaza Drive Suite 130 Highlands Ranch, CO 80129
PHONE:	518-250-7300	**P.O. #**	02118163.
FAX:	518-250-7301	**PROJECT #**	02118163.0000 WVA ICM
DATE RECEIVED:	11/18/2011	**CONTACT:**	Ausha Scott
DATE COMPLETED:	12/07/2011		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	B114-Pre-Carbon	Modified TO-15	2.5 "Hg	5 psi
02A	B114-POST-Carbon	Modified TO-15	2.0 "Hg	5 psi
03A	B21-Pre-Carbon	Modified TO-15	1.5 "Hg	5 psi
04A	B21-POST-Carbon	Modified TO-15	2.5 "Hg	5 psi
05A	B25-Pre carbon	Modified TO-15	4.0 "Hg	5 psi
06A	B20-Pre-carbon	Modified TO-15	3.0 "Hg	5 psi
07A	B20/25-POST Carbon	Modified TO-15	2.5 "Hg	5 psi
08A	Lab Blank	Modified TO-15	NA	NA
08B	Lab Blank	Modified TO-15	NA	NA
09A	CCV	Modified TO-15	NA	NA
09B	CCV	Modified TO-15	NA	NA
10A	LCS	Modified TO-15	NA	NA
10AA	LCSD	Modified TO-15	NA	NA
10B	LCS	Modified TO-15	NA	NA
10BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Linda D. Frumarn DATE: 12/07/11

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
ARCADIS, Inc. (Malcolm Pirnie)
Workorder# 1111355

Seven 6 Liter Summa Canister samples were received on November 18, 2011. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Air Toxics LTD.
Laboratory Services Since 1989

Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: B114-Pre-Carbon

Lab ID#: 1111355-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.73	9.7	2.9	38
Trichloroethene	0.73	120	3.9	620
Tetrachloroethene	0.73	260	5.0	1800

Client Sample ID: B114-POST-Carbon

Lab ID#: 1111355-02A

No Detections Were Found.

Client Sample ID: B21-Pre-Carbon

Lab ID#: 1111355-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.70	4.4	2.8	17
Trichloroethene	0.70	13	3.8	72
Tetrachloroethene	0.70	2.0	4.8	14

Client Sample ID: B21-POST-Carbon

Lab ID#: 1111355-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.73	2.1	2.9	8.2

Client Sample ID: B25-Pre carbon

Lab ID#: 1111355-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.78	1.0	3.1	4.2
1,1,1-Trichloroethane	0.78	3.0	4.2	16
Trichloroethene	0.78	120	4.2	640
Tetrachloroethene	0.78	3.5	5.2	24

Air Toxics LTD.
Laboratory Services Since 1989

Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: B20-Pre-carbon

Lab ID#: 1111355-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	0.74	14	4.0	78
Tetrachloroethene	0.74	3.1	5.0	21

Client Sample ID: B20/25-POST Carbon

Lab ID#: 1111355-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.73	1.4	2.9	5.4

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Client Sample ID: B114-Pre-Carbon

Lab ID#: 1111355-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112227**	**Date of Collection:**	**11/17/11 10:15:00 A**
Dil. Factor:	**1.46**	**Date of Analysis:**	**11/22/11 10:17 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.9	Not Detected	6.0	Not Detected
Vinyl Chloride	0.73	Not Detected	1.9	Not Detected
Chloroethane	2.9	Not Detected	7.7	Not Detected
1,1-Dichloroethene	0.73	Not Detected	2.9	Not Detected
trans-1,2-Dichloroethene	0.73	Not Detected	2.9	Not Detected
1,1-Dichloroethane	0.73	Not Detected	3.0	Not Detected
cis-1,2-Dichloroethene	0.73	9.7	2.9	38
1,1,1-Trichloroethane	0.73	Not Detected	4.0	Not Detected
Carbon Tetrachloride	0.73	Not Detected	4.6	Not Detected
1,2-Dichloroethane	0.73	Not Detected	3.0	Not Detected
Trichloroethene	0.73	120	3.9	620
1,1,2-Trichloroethane	0.73	Not Detected	4.0	Not Detected
Tetrachloroethene	0.73	260	5.0	1800
Chlorobenzene	0.73	Not Detected	3.4	Not Detected
1,1,2,2-Tetrachloroethane	0.73	Not Detected	5.0	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	89	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B114-POST-Carbon

Lab ID#: 1111355-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112228**	**Date of Collection: 11/17/11 2:00:00 PM**	
Dil. Factor:	**1.44**	**Date of Analysis: 11/22/11 10:44 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.9	Not Detected	5.9	Not Detected
Vinyl Chloride	0.72	Not Detected	1.8	Not Detected
Chloroethane	2.9	Not Detected	7.6	Not Detected
1,1-Dichloroethene	0.72	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.72	Not Detected	2.8	Not Detected
1,1-Dichloroethane	0.72	Not Detected	2.9	Not Detected
cis-1,2-Dichloroethene	0.72	Not Detected	2.8	Not Detected
1,1,1-Trichloroethane	0.72	Not Detected	3.9	Not Detected
Carbon Tetrachloride	0.72	Not Detected	4.5	Not Detected
1,2-Dichloroethane	0.72	Not Detected	2.9	Not Detected
Trichloroethene	0.72	Not Detected	3.9	Not Detected
1,1,2-Trichloroethane	0.72	Not Detected	3.9	Not Detected
Tetrachloroethene	0.72	Not Detected	4.9	Not Detected
Chlorobenzene	0.72	Not Detected	3.3	Not Detected
1,1,2,2-Tetrachloroethane	0.72	Not Detected	4.9	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	91	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B21-Pre-Carbon

Lab ID#: 1111355-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112310**	**Date of Collection:**	**11/17/11 11:32:00 A**
Dil. Factor:	**1.41**	**Date of Analysis:**	**11/23/11 12:56 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.8	Not Detected	5.8	Not Detected
Vinyl Chloride	0.70	Not Detected	1.8	Not Detected
Chloroethane	2.8	Not Detected	7.4	Not Detected
1,1-Dichloroethene	0.70	Not Detected	2.8	Not Detected
trans-1,2-Dichloroethene	0.70	Not Detected	2.8	Not Detected
1,1-Dichloroethane	0.70	Not Detected	2.8	Not Detected
cis-1,2-Dichloroethene	0.70	4.4	2.8	17
1,1,1-Trichloroethane	0.70	Not Detected	3.8	Not Detected
Carbon Tetrachloride	0.70	Not Detected	4.4	Not Detected
1,2-Dichloroethane	0.70	Not Detected	2.8	Not Detected
Trichloroethene	0.70	13	3.8	72
1,1,2-Trichloroethane	0.70	Not Detected	3.8	Not Detected
Tetrachloroethene	0.70	2.0	4.8	14
Chlorobenzene	0.70	Not Detected	3.2	Not Detected
1,1,2,2-Tetrachloroethane	0.70	Not Detected	4.8	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	91	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B21-POST-Carbon

Lab ID#: 1111355-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112311**	**Date of Collection:**	**11/17/11 11:34:00 A**
Dil. Factor:	**1.46**	**Date of Analysis:**	**11/23/11 01:39 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.9	Not Detected	6.0	Not Detected
Vinyl Chloride	0.73	Not Detected	1.9	Not Detected
Chloroethane	2.9	Not Detected	7.7	Not Detected
1,1-Dichloroethene	0.73	Not Detected	2.9	Not Detected
trans-1,2-Dichloroethene	0.73	Not Detected	2.9	Not Detected
1,1-Dichloroethane	0.73	Not Detected	3.0	Not Detected
cis-1,2-Dichloroethene	0.73	2.1	2.9	8.2
1,1,1-Trichloroethane	0.73	Not Detected	4.0	Not Detected
Carbon Tetrachloride	0.73	Not Detected	4.6	Not Detected
1,2-Dichloroethane	0.73	Not Detected	3.0	Not Detected
Trichloroethene	0.73	Not Detected	3.9	Not Detected
1,1,2-Trichloroethane	0.73	Not Detected	4.0	Not Detected
Tetrachloroethene	0.73	Not Detected	5.0	Not Detected
Chlorobenzene	0.73	Not Detected	3.4	Not Detected
1,1,2,2-Tetrachloroethane	0.73	Not Detected	5.0	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	92	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B25-Pre carbon

Lab ID#: 1111355-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112312**	**Date of Collection:**	**11/17/11 2:05:00 PM**
Dil. Factor:	**1.55**	**Date of Analysis:**	**11/23/11 02:16 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	3.1	Not Detected	6.4	Not Detected
Vinyl Chloride	0.78	Not Detected	2.0	Not Detected
Chloroethane	3.1	Not Detected	8.2	Not Detected
1,1-Dichloroethene	0.78	Not Detected	3.1	Not Detected
trans-1,2-Dichloroethene	0.78	Not Detected	3.1	Not Detected
1,1-Dichloroethane	0.78	Not Detected	3.1	Not Detected
cis-1,2-Dichloroethene	0.78	1.0	3.1	4.2
1,1,1-Trichloroethane	0.78	3.0	4.2	16
Carbon Tetrachloride	0.78	Not Detected	4.9	Not Detected
1,2-Dichloroethane	0.78	Not Detected	3.1	Not Detected
Trichloroethene	0.78	120	4.2	640
1,1,2-Trichloroethane	0.78	Not Detected	4.2	Not Detected
Tetrachloroethene	0.78	3.5	5.2	24
Chlorobenzene	0.78	Not Detected	3.6	Not Detected
1,1,2,2-Tetrachloroethane	0.78	Not Detected	5.3	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	95	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B20-Pre-carbon

Lab ID#: 1111355-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112313**	**Date of Collection:**	**11/17/11 2:00:00 PM**
Dil. Factor:	**1.49**	**Date of Analysis:**	**11/23/11 02:34 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	3.0	Not Detected	6.2	Not Detected
Vinyl Chloride	0.74	Not Detected	1.9	Not Detected
Chloroethane	3.0	Not Detected	7.9	Not Detected
1,1-Dichloroethene	0.74	Not Detected	3.0	Not Detected
trans-1,2-Dichloroethene	0.74	Not Detected	3.0	Not Detected
1,1-Dichloroethane	0.74	Not Detected	3.0	Not Detected
cis-1,2-Dichloroethene	0.74	Not Detected	3.0	Not Detected
1,1,1-Trichloroethane	0.74	Not Detected	4.1	Not Detected
Carbon Tetrachloride	0.74	Not Detected	4.7	Not Detected
1,2-Dichloroethane	0.74	Not Detected	3.0	Not Detected
Trichloroethene	0.74	14	4.0	78
1,1,2-Trichloroethane	0.74	Not Detected	4.1	Not Detected
Tetrachloroethene	0.74	3.1	5.0	21
Chlorobenzene	0.74	Not Detected	3.4	Not Detected
1,1,2,2-Tetrachloroethane	0.74	Not Detected	5.1	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	95	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: B20/25-POST Carbon

Lab ID#: 1111355-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112314**	**Date of Collection: 11/17/11 2:08:00 PM**	
Dil. Factor:	**1.46**	**Date of Analysis: 11/23/11 02:56 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.9	Not Detected	6.0	Not Detected
Vinyl Chloride	0.73	Not Detected	1.9	Not Detected
Chloroethane	2.9	Not Detected	7.7	Not Detected
1,1-Dichloroethene	0.73	Not Detected	2.9	Not Detected
trans-1,2-Dichloroethene	0.73	Not Detected	2.9	Not Detected
1,1-Dichloroethane	0.73	Not Detected	3.0	Not Detected
cis-1,2-Dichloroethene	0.73	1.4	2.9	5.4
1,1,1-Trichloroethane	0.73	Not Detected	4.0	Not Detected
Carbon Tetrachloride	0.73	Not Detected	4.6	Not Detected
1,2-Dichloroethane	0.73	Not Detected	3.0	Not Detected
Trichloroethene	0.73	Not Detected	3.9	Not Detected
1,1,2-Trichloroethane	0.73	Not Detected	4.0	Not Detected
Tetrachloroethene	0.73	Not Detected	5.0	Not Detected
Chlorobenzene	0.73	Not Detected	3.4	Not Detected
1,1,2,2-Tetrachloroethane	0.73	Not Detected	5.0	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	94	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1111355-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112208**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/22/11 11:07 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	93	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1111355-08B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112309**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/23/11 12:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	94	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1111355-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112202**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/22/11 08:31 AM**	

Compound	%Recovery
Chloromethane	94
Vinyl Chloride	92
Chloroethane	90
1,1-Dichloroethene	97
trans-1,2-Dichloroethene	93
1,1-Dichloroethane	92
cis-1,2-Dichloroethene	93
1,1,1-Trichloroethane	96
Carbon Tetrachloride	98
1,2-Dichloroethane	95
Trichloroethene	98
1,1,2-Trichloroethane	102
Tetrachloroethene	101
Chlorobenzene	100
1,1,2,2-Tetrachloroethane	101

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	101	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1111355-09B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/23/11 08:23 AM**	

Compound	%Recovery
Chloromethane	96
Vinyl Chloride	92
Chloroethane	90
1,1-Dichloroethene	96
trans-1,2-Dichloroethene	92
1,1-Dichloroethane	91
cis-1,2-Dichloroethene	93
1,1,1-Trichloroethane	95
Carbon Tetrachloride	96
1,2-Dichloroethane	96
Trichloroethene	96
1,1,2-Trichloroethane	102
Tetrachloroethene	100
Chlorobenzene	102
1,1,2,2-Tetrachloroethane	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1111355-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112203**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/22/11 09:01 AM**	

Compound	%Recovery
Chloromethane	97
Vinyl Chloride	95
Chloroethane	91
1,1-Dichloroethene	106
trans-1,2-Dichloroethene	107
1,1-Dichloroethane	92
cis-1,2-Dichloroethene	94
1,1,1-Trichloroethane	100
Carbon Tetrachloride	101
1,2-Dichloroethane	97
Trichloroethene	99
1,1,2-Trichloroethane	101
Tetrachloroethene	98
Chlorobenzene	101
1,1,2,2-Tetrachloroethane	106

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1111355-10AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112204**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/22/11 09:18 AM**	

Compound	%Recovery
Chloromethane	94
Vinyl Chloride	95
Chloroethane	91
1,1-Dichloroethene	106
trans-1,2-Dichloroethene	107
1,1-Dichloroethane	93
cis-1,2-Dichloroethene	95
1,1,1-Trichloroethane	100
Carbon Tetrachloride	100
1,2-Dichloroethane	96
Trichloroethene	102
1,1,2-Trichloroethane	102
Tetrachloroethene	98
Chlorobenzene	102
1,1,2,2-Tetrachloroethane	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1111355-10B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112303**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/23/11 09:19 AM**	

Compound	%Recovery
Chloromethane	100
Vinyl Chloride	98
Chloroethane	93
1,1-Dichloroethene	109
trans-1,2-Dichloroethene	109
1,1-Dichloroethane	95
cis-1,2-Dichloroethene	96
1,1,1-Trichloroethane	104
Carbon Tetrachloride	104
1,2-Dichloroethane	100
Trichloroethene	101
1,1,2-Trichloroethane	106
Tetrachloroethene	102
Chlorobenzene	104
1,1,2,2-Tetrachloroethane	108

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	101	70-130

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Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1111355-10BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p112304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/23/11 09:36 AM**	

Compound	%Recovery
Chloromethane	105
Vinyl Chloride	103
Chloroethane	100
1,1-Dichloroethene	116
trans-1,2-Dichloroethene	114
1,1-Dichloroethane	102
cis-1,2-Dichloroethene	104
1,1,1-Trichloroethane	108
Carbon Tetrachloride	108
1,2-Dichloroethane	102
Trichloroethene	105
1,1,2-Trichloroethane	110
Tetrachloroethene	107
Chlorobenzene	110
1,1,2,2-Tetrachloroethane	110

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	102	70-130

Air Toxics LTD.
Laboratory Services Since 1989

12/10/2011
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Project Name: WVA-ICM
Project #:
Workorder #: 1111402

Dear Mr. Andy Vitolins

The following report includes the data for the above referenced project for sample(s) received on 11/22/2011 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Ausha Scott

Project Manager

WORK ORDER #: 1111402

Work Order Summary

CLIENT:	Mr. Andy Vitolins ARCADIS, Inc. (Malcolm Pirnie) 855 Route 146 Suite 210 Clifton Park, NY 12065	**BILL TO:**	Accounts Payable ARCADIS, Inc. 630 Plaza Drive Suite 130 Highlands Ranch, CO 80129
PHONE:	518-250-7300	**P.O. #**	02118187.0000
FAX:	518-250-7301	**PROJECT #**	WVA-ICM
DATE RECEIVED:	11/22/2011	**CONTACT:**	Ausha Scott
DATE COMPLETED:	12/10/2011		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	IA-B25-1	Modified TO-15 SIM	6.0 "Hg	5psi
02A	IA-B25-2	Modified TO-15 SIM	6.0 "Hg	5psi
03A	IA-B25-3	Modified TO-15 SIM	7.0 "Hg	5psi
04A	IA-B25-4	Modified TO-15 SIM	7.0 "Hg	5psi
05A	IA-B25-5	Modified TO-15 SIM	7.5 "Hg	5psi
06A	IA-B20-1	Modified TO-15 SIM	6.0 "Hg	5psi
07A	IA-B21-1	Modified TO-15 SIM	6.5 "Hg	5psi
08A	IA-B21-2	Modified TO-15 SIM	6.5 "Hg	5psi
09A	IA-B22-1	Modified TO-15 SIM	6.0 "Hg	5psi
10A	IA-B22-2	Modified TO-15 SIM	6.5 "Hg	5psi
11A	IA-B15-1	Modified TO-15 SIM	5.5 "Hg	5psi
12A	IA-B15-2	Modified TO-15 SIM	6.5 "Hg	5psi
13A	IA-B114-1	Modified TO-15 SIM	7.0 "Hg	5psi
14A	IA-B120-1	Modified TO-15 SIM	6.5 "Hg	5psi
15A	IA-B120-2	Modified TO-15 SIM	5.5 "Hg	5psi
16A	IA-B121-1	Modified TO-15 SIM	6.0 "Hg	5psi
17A	IA-B130-1	Modified TO-15 SIM	7.5 "Hg	5psi

Continued on next page

Air Toxics LTD.
Laboratory Services Since 1989

WORK ORDER #: 1111402

Work Order Summary

CLIENT:	Mr. Andy Vitolins ARCADIS, Inc. (Malcolm Pirnie) 855 Route 146 Suite 210 Clifton Park, NY 12065	**BILL TO:**	Accounts Payable ARCADIS, Inc. 630 Plaza Drive Suite 130 Highlands Ranch, CO 80129
PHONE:	518-250-7300	**P.O. #**	02118187.0000
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DATE RECEIVED:	11/22/2011	**CONTACT:**	Ausha Scott
DATE COMPLETED:	12/10/2011		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
18A	IA-DUP	Modified TO-15 SIM	6.0 "Hg	5psi
19A	Lab Blank	Modified TO-15 SIM	NA	NA
19B	Lab Blank	Modified TO-15 SIM	NA	NA
20A	CCV	Modified TO-15 SIM	NA	NA
20B	CCV	Modified TO-15 SIM	NA	NA
21A	LCS	Modified TO-15 SIM	NA	NA
21AA	LCSD	Modified TO-15 SIM	NA	NA
21B	LCS	Modified TO-15 SIM	NA	NA
21BB	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY: Linda D. Frumarn DATE: 12/10/11

Laboratory Director

Certfication numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 SIM
ARCADIS, Inc. (Malcolm Pirnie)
Workorder# 1111402

Eighteen 6 Liter Summa Special (SIM Certified) samples were received on November 22, 2011. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

The Chain of Custody (COC) information for sample IA-B120-2 did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

The Chain of Custody (COC) information for samples IA-B21-2 and IA-B15-2 did not match the entries on the sample tags with regard to sample identification. Therefore the information on the COC was used to process and report the samples.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtractior

not performed).

J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit.
UJ- Non-detected compound associated with low bias in the CCV and/or LCS.
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Air Toxics LTD.
Laboratory Services Since 1989

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: IA-B25-1

Lab ID#: 1111402-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.034	0.045	0.23	0.31
Chloromethane	0.084	0.45	0.17	0.93
Carbon Tetrachloride	0.034	0.070	0.21	0.44

Client Sample ID: IA-B25-2

Lab ID#: 1111402-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.034	0.049	0.23	0.33
Chloromethane	0.084	0.44	0.17	0.91
Carbon Tetrachloride	0.034	0.075	0.21	0.47

Client Sample ID: IA-B25-3

Lab ID#: 1111402-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.035	0.069	0.24	0.47
Chloromethane	0.088	0.42	0.18	0.87
Carbon Tetrachloride	0.035	0.078	0.22	0.49

Client Sample ID: IA-B25-4

Lab ID#: 1111402-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.035	0.047	0.24	0.32
Chloromethane	0.088	0.44	0.18	0.91
Carbon Tetrachloride	0.035	0.079	0.22	0.50

Client Sample ID: IA-B25-5

Lab ID#: 1111402-05A

Air Toxics LTD.
Laboratory Services Since 1989

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: IA-B25-5

Lab ID#: 1111402-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.036	0.063	0.24	0.43
Chloromethane	0.090	0.41	0.18	0.85
Carbon Tetrachloride	0.036	0.073	0.22	0.46

Client Sample ID: IA-B20-1

Lab ID#: 1111402-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	0.084	0.43	0.17	0.89
Carbon Tetrachloride	0.034	0.056	0.21	0.35

Client Sample ID: IA-B21-1

Lab ID#: 1111402-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	0.086	0.38	0.18	0.78
Carbon Tetrachloride	0.034	0.069	0.22	0.43

Client Sample ID: IA-B21-2

Lab ID#: 1111402-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	0.086	0.41	0.18	0.85
Carbon Tetrachloride	0.034	0.082	0.22	0.52

Client Sample ID: IA-B22-1

Lab ID#: 1111402-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.034	0.046	0.23	0.31
Chloromethane	0.084	0.43	0.17	0.90

Air Toxics LTD.
Laboratory Services Since 1989

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: IA-B22-1

Lab ID#: 1111402-09A

Carbon Tetrachloride	0.034	0.075	0.21	0.47

Client Sample ID: IA-B22-2

Lab ID#: 1111402-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	0.086	0.40	0.18	0.82

Client Sample ID: IA-B15-1

Lab ID#: 1111402-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	0.082	0.41	0.17	0.86
Carbon Tetrachloride	0.033	0.079	0.21	0.50

Client Sample ID: IA-B15-2

Lab ID#: 1111402-12A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	0.086	0.44	0.18	0.92
Carbon Tetrachloride	0.034	0.077	0.22	0.48

Client Sample ID: IA-B114-1

Lab ID#: 1111402-13A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.035	0.78	0.19	4.2
Tetrachloroethene	0.035	0.17	0.24	1.2
Chloromethane	0.088	0.42	0.18	0.86
Carbon Tetrachloride	0.035	0.085	0.22	0.54

Air Toxics LTD.
Laboratory Services Since 1989

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: IA-B120-1

Lab ID#: 1111402-14A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.034	0.039	0.19	0.21
Chloromethane	0.086	0.42	0.18	0.86
Carbon Tetrachloride	0.034	0.078	0.22	0.49

Client Sample ID: IA-B120-2

Lab ID#: 1111402-15A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.033	0.14	0.18	0.75
Trichloroethene	0.033	0.078	0.18	0.42
Tetrachloroethene	0.033	0.036	0.22	0.25
Chloromethane	0.082	0.40	0.17	0.83
Carbon Tetrachloride	0.033	0.075	0.21	0.47

Client Sample ID: IA-B121-1

Lab ID#: 1111402-16A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.034	0.14	0.18	0.75
Chloromethane	0.084	0.42	0.17	0.86
Carbon Tetrachloride	0.034	0.073	0.21	0.46

Client Sample ID: IA-B130-1

Lab ID#: 1111402-17A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	0.036	0.062	0.19	0.33
Tetrachloroethene	0.036	0.068	0.24	0.46
Chloromethane	0.090	0.40	0.18	0.82
Carbon Tetrachloride	0.036	0.074	0.22	0.47

Air Toxics LTD.
Laboratory Services Since 1989

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: IA-DUP

Lab ID#: 1111402-18A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.034	0.13	0.18	0.70
Chloromethane	0.084	0.40	0.17	0.84
Carbon Tetrachloride	0.034	0.072	0.21	0.46

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B25-1

Lab ID#: 1111402-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112612**	**Date of Collection: 11/21/11 4:20:00 PM**	
Dil. Factor:	**1.68**	**Date of Analysis: 11/26/11 04:31 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.18	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	0.045	0.23	0.31
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Chloromethane	0.084	0.45	0.17	0.93
Chloroethane	0.084	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.034	0.070	0.21	0.44

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	120	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	108	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B25-2

Lab ID#: 1111402-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112613**	**Date of Collection:**	**11/21/11 4:21:00 PM**
Dil. Factor:	**1.68**	**Date of Analysis:**	**11/26/11 05:08 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.18	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	0.049	0.23	0.33
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Chloromethane	0.084	0.44	0.17	0.91
Chloroethane	0.084	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.034	0.075	0.21	0.47

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	120	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B25-3

Lab ID#: 1111402-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112614**	**Date of Collection:**	**11/21/11 4:26:00 PM**
Dil. Factor:	**1.75**	**Date of Analysis:**	**11/26/11 06:03 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	Not Detected	0.045	Not Detected
1,1-Dichloroethene	0.018	Not Detected	0.069	Not Detected
1,1-Dichloroethane	0.035	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.035	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.035	Not Detected	0.19	Not Detected
1,2-Dichloroethane	0.035	Not Detected	0.14	Not Detected
Trichloroethene	0.035	Not Detected	0.19	Not Detected
1,1,2-Trichloroethane	0.035	Not Detected	0.19	Not Detected
Tetrachloroethene	0.035	0.069	0.24	0.47
1,1,2,2-Tetrachloroethane	0.035	Not Detected	0.24	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected
Chloromethane	0.088	0.42	0.18	0.87
Chloroethane	0.088	Not Detected	0.23	Not Detected
Chlorobenzene	0.035	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.035	0.078	0.22	0.49

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	121	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B25-4

Lab ID#: 1111402-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112615**	**Date of Collection:**	**11/21/11 4:16:00 PM**
Dil. Factor:	**1.75**	**Date of Analysis:**	**11/26/11 06:41 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	Not Detected	0.045	Not Detected
1,1-Dichloroethene	0.018	Not Detected	0.069	Not Detected
1,1-Dichloroethane	0.035	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.035	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.035	Not Detected	0.19	Not Detected
1,2-Dichloroethane	0.035	Not Detected	0.14	Not Detected
Trichloroethene	0.035	Not Detected	0.19	Not Detected
1,1,2-Trichloroethane	0.035	Not Detected	0.19	Not Detected
Tetrachloroethene	0.035	0.047	0.24	0.32
1,1,2,2-Tetrachloroethane	0.035	Not Detected	0.24	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected
Chloromethane	0.088	0.44	0.18	0.91
Chloroethane	0.088	Not Detected	0.23	Not Detected
Chlorobenzene	0.035	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.035	0.079	0.22	0.50

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	121	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B25-5

Lab ID#: 1111402-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112616**	**Date of Collection: 11/21/11 4:23:00 PM**	
Dil. Factor:	**1.79**	**Date of Analysis: 11/26/11 07:28 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	Not Detected	0.046	Not Detected
1,1-Dichloroethene	0.018	Not Detected	0.071	Not Detected
1,1-Dichloroethane	0.036	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.036	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.036	Not Detected	0.20	Not Detected
1,2-Dichloroethane	0.036	Not Detected	0.14	Not Detected
Trichloroethene	0.036	Not Detected	0.19	Not Detected
1,1,2-Trichloroethane	0.036	Not Detected	0.20	Not Detected
Tetrachloroethene	0.036	0.063	0.24	0.43
1,1,2,2-Tetrachloroethane	0.036	Not Detected	0.24	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected
Chloromethane	0.090	0.41	0.18	0.85
Chloroethane	0.090	Not Detected	0.24	Not Detected
Chlorobenzene	0.036	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.036	0.073	0.22	0.46

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	122	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B20-1

Lab ID#: 1111402-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112617**	**Date of Collection: 11/21/11 4:43:00 PM**	
Dil. Factor:	**1.68**	**Date of Analysis: 11/26/11 09:00 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.18	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Chloromethane	0.084	0.43	0.17	0.89
Chloroethane	0.084	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.034	0.056	0.21	0.35

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	122	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	106	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B21-1

Lab ID#: 1111402-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112618**	**Date of Collection: 11/21/11 6:15:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 11/26/11 09:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.068	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.19	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.19	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Chloromethane	0.086	0.38	0.18	0.78
Chloroethane	0.086	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.034	0.069	0.22	0.43

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B21-2

Lab ID#: 1111402-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112619**	**Date of Collection: 11/21/11 5:06:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 11/26/11 10:16 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.068	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.19	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.19	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Chloromethane	0.086	0.41	0.18	0.85
Chloroethane	0.086	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.034	0.082	0.22	0.52

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	122	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	107	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B22-1

Lab ID#: 1111402-09A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112620**	**Date of Collection: 11/21/11 4:57:00 PM**	
Dil. Factor:	**1.68**	**Date of Analysis: 11/26/11 10:53 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.18	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	0.046	0.23	0.31
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Chloromethane	0.084	0.43	0.17	0.90
Chloroethane	0.084	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.034	0.075	0.21	0.47

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	122	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B22-2

Lab ID#: 1111402-10A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112621**	**Date of Collection: 11/21/11 4:59:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 11/26/11 11:28 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.068	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.19	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.19	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Chloromethane	0.086	0.40	0.18	0.82
Chloroethane	0.086	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.034	Not Detected	0.22	Not Detected

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B15-1

Lab ID#: 1111402-11A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112708**	**Date of Collection:**	**11/21/11 5:34:00 PM**
Dil. Factor:	**1.64**	**Date of Analysis:**	**11/27/11 05:46 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.042	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.065	Not Detected
1,1-Dichloroethane	0.033	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.033	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.033	Not Detected	0.18	Not Detected
1,2-Dichloroethane	0.033	Not Detected	0.13	Not Detected
Trichloroethene	0.033	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.033	Not Detected	0.18	Not Detected
Tetrachloroethene	0.033	Not Detected	0.22	Not Detected
1,1,2,2-Tetrachloroethane	0.033	Not Detected	0.22	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.65	Not Detected
Chloromethane	0.082	0.41	0.17	0.86
Chloroethane	0.082	Not Detected	0.22	Not Detected
Chlorobenzene	0.033	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.033	0.079	0.21	0.50

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	125	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	110	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B15-2

Lab ID#: 1111402-12A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112709**	**Date of Collection: 11/21/11 5:36:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 11/27/11 06:26 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.068	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.19	Not Detected
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.19	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Chloromethane	0.086	0.44	0.18	0.92
Chloroethane	0.086	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.034	0.077	0.22	0.48

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	125	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B114-1

Lab ID#: 1111402-13A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112710**	**Date of Collection: 11/21/11 5:43:00 PM**	
Dil. Factor:	**1.75**	**Date of Analysis: 11/27/11 07:02 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	Not Detected	0.045	Not Detected
1,1-Dichloroethene	0.018	Not Detected	0.069	Not Detected
1,1-Dichloroethane	0.035	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.035	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.035	0.78	0.19	4.2
1,2-Dichloroethane	0.035	Not Detected	0.14	Not Detected
Trichloroethene	0.035	Not Detected	0.19	Not Detected
1,1,2-Trichloroethane	0.035	Not Detected	0.19	Not Detected
Tetrachloroethene	0.035	0.17	0.24	1.2
1,1,2,2-Tetrachloroethane	0.035	Not Detected	0.24	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected
Chloromethane	0.088	0.42	0.18	0.86
Chloroethane	0.088	Not Detected	0.23	Not Detected
Chlorobenzene	0.035	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.035	0.085	0.22	0.54

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	123	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B120-1

Lab ID#: 1111402-14A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112711**	**Date of Collection: 11/21/11 5:51:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 11/27/11 08:33 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.068	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.034	0.039	0.19	0.21
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.19	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
Chloromethane	0.086	0.42	0.18	0.86
Chloroethane	0.086	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.034	0.078	0.22	0.49

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	125	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	107	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B120-2

Lab ID#: 1111402-15A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112712**	**Date of Collection: 11/21/11 5:48:00 PM**	
Dil. Factor:	**1.64**	**Date of Analysis: 11/27/11 09:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.042	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.065	Not Detected
1,1-Dichloroethane	0.033	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.033	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.033	0.14	0.18	0.75
1,2-Dichloroethane	0.033	Not Detected	0.13	Not Detected
Trichloroethene	0.033	0.078	0.18	0.42
1,1,2-Trichloroethane	0.033	Not Detected	0.18	Not Detected
Tetrachloroethene	0.033	0.036	0.22	0.25
1,1,2,2-Tetrachloroethane	0.033	Not Detected	0.22	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.65	Not Detected
Chloromethane	0.082	0.40	0.17	0.83
Chloroethane	0.082	Not Detected	0.22	Not Detected
Chlorobenzene	0.033	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.033	0.075	0.21	0.47

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	123	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	111	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B121-1

Lab ID#: 1111402-16A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112713**	**Date of Collection: 11/21/11 6:07:00 PM**	
Dil. Factor:	**1.68**	**Date of Analysis: 11/27/11 09:44 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	0.14	0.18	0.75
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Chloromethane	0.084	0.42	0.17	0.86
Chloroethane	0.084	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.034	0.073	0.21	0.46

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	123	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	109	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-B130-1

Lab ID#: 1111402-17A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112714**	**Date of Collection: 11/21/11 6:00:00 PM**	
Dil. Factor:	**1.79**	**Date of Analysis: 11/27/11 10:17 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	Not Detected	0.046	Not Detected
1,1-Dichloroethene	0.018	Not Detected	0.071	Not Detected
1,1-Dichloroethane	0.036	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.036	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.036	Not Detected	0.20	Not Detected
1,2-Dichloroethane	0.036	Not Detected	0.14	Not Detected
Trichloroethene	0.036	0.062	0.19	0.33
1,1,2-Trichloroethane	0.036	Not Detected	0.20	Not Detected
Tetrachloroethene	0.036	0.068	0.24	0.46
1,1,2,2-Tetrachloroethane	0.036	Not Detected	0.24	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected
Chloromethane	0.090	0.40	0.18	0.82
Chloroethane	0.090	Not Detected	0.24	Not Detected
Chlorobenzene	0.036	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.036	0.074	0.22	0.47

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	114	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: IA-DUP

Lab ID#: 1111402-18A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112715**	**Date of Collection: 11/21/11**	
Dil. Factor:	**1.68**	**Date of Analysis: 11/27/11 10:54 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	0.13	0.18	0.70
1,2-Dichloroethane	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
1,1,2-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
1,1,2,2-Tetrachloroethane	0.034	Not Detected	0.23	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Chloromethane	0.084	0.40	0.17	0.84
Chloroethane	0.084	Not Detected	0.22	Not Detected
Chlorobenzene	0.034	Not Detected	0.15	Not Detected
Carbon Tetrachloride	0.034	0.072	0.21	0.46

Container Type: 6 Liter Summa Special (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	114	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1111402-19A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112609**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/26/11 02:07 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
1,1,2-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
1,1,2,2-Tetrachloroethane	0.020	Not Detected	0.14	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Chloromethane	0.050	Not Detected	0.10	Not Detected
Chloroethane	0.050	Not Detected	0.13	Not Detected
Chlorobenzene	0.020	Not Detected	0.092	Not Detected
Carbon Tetrachloride	0.020	Not Detected	0.12	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1111402-19B

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112707**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/27/11 04:53 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
1,2-Dichloroethane	0.020	Not Detected	0.081	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
1,1,2-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
1,1,2,2-Tetrachloroethane	0.020	Not Detected	0.14	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Chloromethane	0.050	Not Detected	0.10	Not Detected
Chloroethane	0.050	Not Detected	0.13	Not Detected
Chlorobenzene	0.020	Not Detected	0.092	Not Detected
Carbon Tetrachloride	0.020	Not Detected	0.12	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	105	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1111402-20A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112604**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/26/11 09:58 AM**	

Compound	%Recovery
Vinyl Chloride	107
1,1-Dichloroethene	107
1,1-Dichloroethane	94
cis-1,2-Dichloroethene	95
1,1,1-Trichloroethane	99
1,2-Dichloroethane	86
Trichloroethene	82
1,1,2-Trichloroethane	83
Tetrachloroethene	86
1,1,2,2-Tetrachloroethane	85
trans-1,2-Dichloroethene	88
Chloromethane	84
Chloroethane	106
Chlorobenzene	82
Carbon Tetrachloride	106

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	124	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	109	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1111402-20B

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/27/11 12:38 PM**	

Compound	%Recovery
Vinyl Chloride	98
1,1-Dichloroethene	112
1,1-Dichloroethane	98
cis-1,2-Dichloroethene	101
1,1,1-Trichloroethane	105
1,2-Dichloroethane	91
Trichloroethene	85
1,1,2-Trichloroethane	88
Tetrachloroethene	90
1,1,2,2-Tetrachloroethane	86
trans-1,2-Dichloroethene	94
Chloromethane	82
Chloroethane	106
Chlorobenzene	84
Carbon Tetrachloride	112

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	128	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	108	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1111402-21A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112605**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/26/11 10:58 AM**	

Compound	%Recovery
Vinyl Chloride	109
1,1-Dichloroethene	118
1,1-Dichloroethane	97
cis-1,2-Dichloroethene	101
1,1,1-Trichloroethane	105
1,2-Dichloroethane	88
Trichloroethene	86
1,1,2-Trichloroethane	86
Tetrachloroethene	86
1,1,2,2-Tetrachloroethane	84
trans-1,2-Dichloroethene	105
Chloromethane	89
Chloroethane	98
Chlorobenzene	83
Carbon Tetrachloride	111

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	124	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	106	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1111402-21AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112606**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/26/11 11:32 AM**	

Compound	%Recovery
Vinyl Chloride	114
1,1-Dichloroethene	119
1,1-Dichloroethane	99
cis-1,2-Dichloroethene	105
1,1,1-Trichloroethane	106
1,2-Dichloroethane	85
Trichloroethene	89
1,1,2-Trichloroethane	88
Tetrachloroethene	90
1,1,2,2-Tetrachloroethane	88
trans-1,2-Dichloroethene	108
Chloromethane	89
Chloroethane	102
Chlorobenzene	86
Carbon Tetrachloride	112

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	119	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	106	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1111402-21B

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/27/11 01:31 PM**	

Compound	%Recovery
Vinyl Chloride	108
1,1-Dichloroethene	118
1,1-Dichloroethane	97
cis-1,2-Dichloroethene	101
1,1,1-Trichloroethane	107
1,2-Dichloroethane	90
Trichloroethene	87
1,1,2-Trichloroethane	87
Tetrachloroethene	88
1,1,2,2-Tetrachloroethane	85
trans-1,2-Dichloroethene	106
Chloromethane	88
Chloroethane	98
Chlorobenzene	84
Carbon Tetrachloride	113

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	126	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	108	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1111402-21BB

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**c112704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/27/11 02:08 PM**	

Compound	%Recovery
Vinyl Chloride	108
1,1-Dichloroethene	116
1,1-Dichloroethane	96
cis-1,2-Dichloroethene	101
1,1,1-Trichloroethane	106
1,2-Dichloroethane	86
Trichloroethene	86
1,1,2-Trichloroethane	86
Tetrachloroethene	88
1,1,2,2-Tetrachloroethane	85
trans-1,2-Dichloroethene	104
Chloromethane	87
Chloroethane	98
Chlorobenzene	84
Carbon Tetrachloride	112

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	124	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	108	70-130