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FINAL TECHNICAL MEMORANDUM VAPOR INTRUSION MITIGATION SYSTEM PERFORMANCE MONITORING ROUND 1 DATA MCB CAMP LEJEUNE NC

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Vapor Intrusion Mitigation System Performance Monitoring – Round 1 Data, Marine Corps Base Camp Lejeune, North Carolina

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This technical memorandum (TM) documents the findings of the first round of performance monitoring completed following the installation of vapor intrusion mitigation systems (VIMS) at buildings in the Hadnot Point and Mainside areas of Marine Corps Installation East-Marine Corps Base Camp Lejeune (MCIEAST - MCBCAMLEJ), North Carolina.

MCIEAST-MCBCAMLEJ initiated a Base-wide vapor intrusion (VI) evaluation in 2007. The purpose of the Base-wide VI evaluation was to identify buildings where VI might be occurring and to evaluate potential risk posed to building occupants from VI related to groundwater impacts. The VI investigation was conducted in three phases and included exterior groundwater and soil gas sampling, subslab soil gas sampling, indoor air sampling, pressure differential measurements, and building surveys. Conceptual site models (CSMs) utilizing multiple lines of evidence (MLE) collected during the field investigations were developed for each building of interest. These CSMs indicated that, in general, VI is not a current significant pathway of concern at the buildings investigated (CH2M HILL, 2009; CH2M HILL, 2011b). However, there is a potential for the VI pathway to become significant at Buildings 3, 3B, 37, 43, 902, 1005, and 1115 in the future. Based on the results of this evaluation, MCIEAST-MCBCAMLEJ elected to install VIMS in each of these 7 buildings.

The VIMS were installed from November 2011 to February 2012 in accordance with the VIMS Pilot Study Work Plan (VIMS Work Plan) (CH2M HILL, 2011a). System startup was conducted in February and March 2012. The first performance monitoring event was completed within 2 weeks of VIMS start-up. Follow-on monitoring events will be conducted quarterly.

VIMS Performance Monitoring

The first round of VIMS performance monitoring was conducted March 5 through 9 and March 19 through 23, 2012. The results from the VIMS exhaust and indoor, and outdoor air samples along with the flow readings and the differential pressure monitoring conducted during the first round are included in the sections below. Exhaust samples and flow measurements were collected from each suction node along with concurrent indoor and outdoor air samples at each building. Long-term differential pressure monitoring was scoped to be completed at each building during the first round of performance monitoring. However, this monitoring was only completed at Building 1005 because the negative subslab pressures at the other buildings exceeded the monitoring range of the differential pressure monitor. However, the equipment did provide data indicating the VIMS is effectively depressurizing the subslabs given that the target differential pressure is -0.01 inches of water column (“wc).

Exhaust samples were collected from each VIMS node in accordance with the *Standard Operating Procedure (SOP) for Indoor, Outdoor, and Crawl Space Air Sampling for Radon Using Gas Sampling Bags* and analyzed by an off-site laboratory using USEPA method TO-15 for VOCs. A table showing exhaust sample results from the first round of monitoring is included in **Table 1.**

Concurrent 24-hour indoor and outdoor air samples were collected in accordance with the *SOP for Indoor, Outdoor and Crawl Space Air Sampling for VOCs Using Canisters* at each building. A table showing indoor and outdoor air data results from the first round of monitoring is included in **Table 2.**

Indoor air data were screened against Industrial Generic Indoor Air Screening Levels (IASLs) that were developed for the chemicals detected in indoor air samples using the May 2012 USEPA Regional Screening Levels (RSLs) for industrial air. The Generic IASLs are based on a $1x10^{-6}$ cancer and a non-cancer Hazard Quotient (HQ) of 1.0. However, non-cancer IASLs were divided by 10 (resulting in a HQ of 0.1) in order to account for potentially cumulative effects (i.e. it is assumed that 10 non-carcinogens would be present that all impact the same target organ [e.g., liver]). This adjustment over-estimates risk in scenarios where fewer than 10 non-carcinogenic COPCs are actually present in the sample, particularly since they may not all have the same critical effect on the same target organ. Cancer-based IASLs were not divided by 10 since they are based on a target risk of $1x10^{-6}$ and the USEPA (1991) target cancer risk range is from $1x10^{-6}$ to $1x10^{-4}$. For this evaluation the non-cancer IASLs were used for both PCE and TCE. These constituents are carcinogenic and the cancer IASLs are lower than the non-adjusted non-cancer IASLs but, the non-cancer IASLs are lower than the cancer IASLs when adjusted by dividing by 10 (resulting in a HQ of 0.1).

Site 88

Site 88 is located within Operable Unit (OU) 15 and is the former Base Dry Cleaning Facility (former Building 25). The dry cleaning operations began in the 1940s and ceased in January 2004. The building was demolished to the slab in August 2004. The slab was removed and underlying soils were treated during subsequent site activities.

Building 3

There are 8 VIMS nodes installed within Building 3. The location of each VIMS node is illustrated on **Figure 1.** Flow rate measurements were collected from each node during the first round of performance monitoring using a hot-wire anemometer. Flow rate measurements and vacuum measurements are presented in the **Table 3.**

Table 3

Vapor Intrusion Mitigation System Flow Measurements – Building 3
VIMS Performance Monitoring – Round 1

VIMS Node ID	Vacuum (“wc)	Flow Rate (ft3/sec)
IR88-BLDG3-GE01	-14.5	0.81
IR88-BLDG3-GE02	-10	0.45
IR88-BLDG3-GE03	-12	0.26
IR88-BLDG3-GE04	-28.5	0.64
IR88-BLDG3-GE05	-24	0.69
IR88-BLDG3-GE06	-23.3	0.56
IR88-BLDG3-GE07	-24.5	0.51
IR88-BLDG3-GE08	-19	0.56

Each node at Building 3 indicated a vacuum and a flow rate consistent with successful VIMS operation. The subslab probe, centrally located within Building 3, IR88-SG15 also showed a negative subslab to indoor pressure differential, greater than -0.25 “wc. Long-term differential pressure monitoring could not be completed since the differential pressure exceeded the upper range of the monitoring equipment. However, the equipment did provide data indicating the VIMS is effectively depressurizing the subslab given that the target differential pressure is -0.01 ”wc.

The results of the exhaust sampling indicate the VIMS is effectively removing PCE from the subslab (**Table 1**). In addition, no target VOCs were detected above the IASLs in the indoor air samples collected during the first round of monitoring (**Table 2**). Based on the first round of monitoring data, the VIMS is operating effectively.

Building 3B

There are 4 VIMS nodes installed in Building 3B. The location of each VIMS node is depicted on **Figure 2.** Flow rate and vacuum measurements were collected from each node during the first round of performance monitoring. The flow rates and vacuum measurements are presented in the **Table 4.**

Table 4

Vapor Intrusion Mitigation System Flow Measurements – Building 3B
VIMS Performance Monitoring – Round 1

VIMS Node ID	Vacuum (“wc)	Flow Rate (ft3/sec)
IR88-BLDG3B-GE01	-10	0.29
IR88-BLDG3B-GE02	-10	0.20
IR88-BLDG3B-GE03	-10	0.19
IR88-BLDG3B-GE04	-10.25	0.29

Each node at Building 3B had a vacuum and a flow rate consistent with effective VIMS operation. The differential pressure measurement collected from IR88- SG05, located centrally within the building, indicated a negative subslab to indoor pressure differential greater than -.25 “wc. Long-term differential pressure monitoring could not be completed since the differential pressure exceeded the upper range of the monitoring equipment. However, the equipment did provide data indicating the VIMS is effectively depressurizing the subslab given that the target differential pressure is -0.01 ”wc.

PCE was the only constituent detected above the IASL in the indoor air sample at a concentration of 8.6 ppbv (**Table 2**). PCE was not detected above the laboratory reporting limits in the outdoor air sample. Prior to VIMS startup, PCE was detected at concentrations up to 72 ppbv. Therefore, the VIMS has been effective in significantly reducing the PCE concentrations in indoor air. In addition, the results of the exhaust sampling indicate the VIMS is effectively removing PCE from the subslab (**Table 1**).

A HAPSITE portable gas chromatograph/mass spectrometer (GC/MS) was used to evaluate if the elevated indoor air concentrations detected during the first round of performance monitoring could be attributed to an indoor source and not due to VI. During the evaluation, slightly elevated indoor air PCE concentrations were observed throughout the building; however, a specific indoor source could not be identified.

Based on the first round of monitoring data, the VIMS is operating effectively. PCE concentrations in indoor air will continue to be monitored and additional pressure differential data will be collected during the second monitoring event.

Building 37

There are 6 VIMS nodes installed in Building 37. The location of each VIMS node is illustrated on **Figure 4.** Flow rate and vacuum measurements were collected from each node during the first round of performance monitoring. The flow rates are presented in the **Table 5.**

Table 5

Vapor Intrusion Mitigation System Flow Measurements – Building 37
VIMS Performance Monitoring – Round 1

VIMS Node ID	Vacuum (“wc)	Flow Rate (ft3/sec)
IR88-BLDG37-GE01	-50	0.64
IR88-BLDG37-GE02	-50	0.48
IR88-BLDG37-GE03	-50	0.56
IR88-BLDG37-GE04	-47	0.39
IR88-BLDG37-GE05	-50	0.49
IR88-BLDG37-GE06	-50	0.29

Each node at Building 37 had a vacuum and a flow rate consistent with effective VIMS operation. The differential pressure measurement collected from IR88- SG07, located centrally within the building, indicated a negative subslab to indoor pressure differential greater than -.25 “wc. Long-term differential pressure monitoring could not be completed since the differential pressure exceeded the upper range of the monitoring equipment. However, the equipment did provide data indicating the VIMS is effectively depressurizing the subslab given that the target differential pressure is -0.01 ”wc.

Benzene was detected above the IASL in duplicate indoor air sample (IR88-BLDG37-IA01D-12A). These constituents were not detected in the parent indoor air sample (IR88-BLDG37-IA01-12A). The benzene concentration detected in the duplicate sample (2.2 J ppbv) is similar to the reporting limit (2.5 ppbv) for the parent sample and the outdoor air sample. In addition, benzene has not been detected in indoor air above the IASL in any of the previous sampling events. Therefore, the benzene detection is unlikely to be related to VI.1,2,4-Trimethylbenzene was detected above the IASL in the indoor air sample (IR88-BLDG37-12A). The detected concentration (0.85 J ppbv) exceeds the adjusted IASL (0.12 ppbv), but the concentration does not exceed the non-adjusted IASL (1.2 ppbv) which is a more accurate risk based screening level since there are no other non-cancer constituents exceeding the IASLs.The results of the exhaust sampling indicated concentrations of PCE, toluene, 1,2,4-trimethylbenzene, 2-butanone, acetone, and methylene chloride are being removed from the subslab. Based on the first round of monitoring data, the VIMS is operating effectively.

Building 43

There are 3 VIMS node installed in Building 43. The location of each VIMS node is presented on **Figure 5.** Flow rate and vacuum measurements were collected from each node during the first round of performance monitoring. The flow rates are provided in the **Table 6.**

Table 6

Vapor Intrusion Mitigation System Flow Measurements – Building 43
VIMS Performance Monitoring – Round 1

VIMS Node ID	Vacuum (“wc)	Flow Rate (ft3/sec)
IR88-BLDG43-GE01	-13.5	0.42
IR88-BLDG43-GE02	-13.5	0.22
IR88-BLDG43-GE03	-15	0.42

Each node at Building 43 had a vacuum and a flow rate consistent with effective VIMS operation. The differential pressure measurement collected from IR88- SG17, located centrally within the building, indicated a negative

subslab to indoor pressure differential greater than -.25 “wc. Long-term differential pressure monitoring could not be completed since the differential pressure exceeded the upper range of the monitoring equipment. However, the equipment did provide data indicating the VIMS is effectively depressurizing the subslab given that the target differential pressure is -0.01 ”wc.

Benzene and 1,4-Dichlorobenzene (1,4-DCB) were the only constituents detected in exceedance of the IASLs in the indoor air sample during the first round of performance monitoring in Building 43 (**Table 2**). The detected benzene concentration (0.65 J ppbv) only slightly exceeds the IASL and is similar to the outdoor air concentration (0.51 J ppbv) collected near Building 3. In addition, benzene has not been previously detected in Building 43 above the IASL. Therefore, the concentration is likely due to outdoor air concentrations.

1,4 –DCB was detected at a concentration of 7.4 ppbv (**Table 2**). Prior to VIMS startup, 1,4-DCB was detected in indoor air at concentrations up to 120 ppbv. However, 1,4-DCB was only detected in 2 of the 4 pre-startup sampling events (both during winter months). In addition, 1,4-DCB was detected in subslab soil gas during previous sampling events, but did not exceed the base-specific SGSL. 1,4-DCB was not detected above the reporting limits in the exhaust samples. This compound is found in commonly used products including air freshners/deodorizers, urinal cakes, and moth balls. It is uncertain whether the low concentration detected in the indoor air sample is due to VI.

PCE, which was historically detected in indoor air at Building 43 at concentrations up to 7.6 ppbv, was not detected above the reporting limit during the first post-startup monitoring event. Based on the data presented above, the VIMS is operating effectively.

Site 78

Site 78 consists of maintenance shops, warehouses, painting shops, printing shops, auto body shops, and other small industrial facilities. The site has been used for industrial purposes, and many spills and leaks have occurred over the years. Groundwater has been impacted by chlorinated solvents (e.g., TCE) and low levels of fuel-related contamination (e.g., BTEX) within 100 feet of the buildings of interest on the north and south portions of the site, respectively.

Building 902

There are 15 VIMS nodes installed in Building 902. The location of each VIMS node is depicted on **Figure 5.** Flow rate and vacuum measurements were collected from each node during the first round of performance monitoring. The flow rates and vacuum measurements are presented in **Table 7.**

Table 7

Vapor Intrusion Mitigation System Flow Measurements - Building 1005
VIMS Performance Monitoring – Round 1

VIMS Node ID	Vacuum (“wc)	Flow Rate (ft3/sec)
IR78-BLDG902-GE01	-22	0.42
IR78-BLDG902-GE02	-22	0.23
IR78-BLDG902-GE03	-22	3.00
IR78-BLDG902-GE04	-22	0.27
IR78-BLDG902-GE05	-22	4.19
IR78-BLDG902-GE06	-22	0.32
IR78-BLDG902-GE07	-21	0.23
IR78-BLDG902-GE08	-22	0.32
IR78-BLDG902-GE09	-21	0.27

VIMS Node ID	Vacuum (“wc)	Flow Rate (ft3/sec)
IR78-BLDG902-GE01	-22	0.42
IR78-BLDG902-GE10	-21	0.12
IR78-BLDG902-GE11	-21	0.32
IR78-BLDG902-GE12	-21	0.09
IR78-BLDG902-GE13	-21	0.25
IR78-BLDG902-GE14	-21	0.35
IR78-BLDG902-GE15	-21	0.15

Each node at Building 902 had a vacuum and a flow rate consistent with effective VIMS operation. The differential pressure measurement collected from IR78- SG60, located centrally within the building, indicated a negative subslab to indoor pressure differential greater than -.25 “wc. Long-term differential pressure monitoring could not be completed since the differential pressure exceeded the upper range of the monitoring equipment. However, the equipment did provide data indicating the VIMS is effectively depressurizing the subslab given that the target differential pressure is -0.01 ”wc.

Benzene and trichloroethene (TCE) were detected in exceedance of the IASL in the indoor air sample collected during the first round of performance monitoring in Building 902 (**Table 2**). The benzene concentration detected in indoor air was similar to the concentration detected in outdoor air. The portion of the building where the indoor air sample was collected is used as a vehicle and equipment maintenance shop. Additionally, the Phase III report attributed detected concentrations of benzene to indoor sources.

A HAPSITE portable GC/MS was used to determine if the elevated indoor air concentrations detected during the first round of performance monitoring were from an indoor source and not due to VI. During the evaluation slightly elevated indoor air concentrations of TCE were seen throughout the building at similar concentrations. Air mixing due to HVAC system operations can occur throughout large buildings. This mixing would result in detection of indoor air contaminants in similar concentrations throughout the building. A specific indoor source for the elevated TCE concentrations could not be determined in Building 902 during this limited survey. However, TCE may be found in products that are stored and used within the building. In addition, the results of the exhaust samples indicate TCE is being removed from the sublab. These data indicate that the TCE exceedance is potentially attributable to an indoor air source.

Based on the pressure monitoring data, indoor air concentrations, and operational data from the VIMS the system is operating effectively. However, trends in indoor air TCE concentrations will continue to be monitored.

Hadnot Point Fuel Farm (HPFF)

The former HPFF area and the former USTs associated with Building 1115 are located between Site 78 North and Site 78 South. Fuel-related contamination has been documented in soil and groundwater across the HPFF, within and underneath the buildings of interest. Free product has been observed in this area and dissolved phase contamination has migrated from the source areas.

Building 1005

There are 31 VIMS node installed in Building 1005. The location of each VIMS node is illustrated on **Figure 7.** Flow rate and vacuum measurements were taken from each node during the first round of performance monitoring. The flow rates and vacuum measurements are presented in the **Table 8.**

Table 8

Vapor Intrusion Mitigation System Flow Measurements – Building 1005
VIMS Performance Monitoring – Round 1

VIMS Node ID	Vacuum (“wc)	Flow Rate (ft3/sec)
HPFF-BLDG1005-GE01	-4	0.06
HPFF-BLDG1005-GE02	-4.5	0.09
HPFF-BLDG1005-GE03	-3	0.04
HPFF-BLDG1005-GE04	-4.5	0.12
HPFF-BLDG1005-GE05	-3	0.26
HPFF-BLDG1005-GE06	-2.5	0.03
HPFF-BLDG1005-GE07	-3.5	0.09
HPFF-BLDG1005-GE08	-3.5	0.11
HPFF-BLDG1005-GE09	-4	0.15
HPFF-BLDG1005-GE10	-3.5	0.15
HPFF-BLDG1005-GE11	-4	0.12
HPFF-BLDG1005-GE12	-4.5	0.37
HPFF-BLDG1005-GE13	-4	0.11
HPFF-BLDG1005-GE14	-3.5	0.10
HPFF-BLDG1005-GE15	-4	0.07
HPFF-BLDG1005-GE16	-3.75	0.03
HPFF-BLDG1005-GE17	-3	0.02
HPFF-BLDG1005-GE18	-3.5	0.05
HPFF-BLDG1005-GE19	-2	0.09
HPFF-BLDG1005-GE20	-3	0.10
HPFF-BLDG1005-GE21	-3.75	0.17
HPFF-BLDG1005-GE22	-4	0.17
HPFF-BLDG1005-GE23	-4	0.15
HPFF-BLDG1005-GE24	-4.5	0.14
HPFF-BLDG1005-GE25	-2	0.20
HPFF-BLDG1005-GE26	-2	0.17
HPFF-BLDG1005-GE27	-2	0.13
HPFF-BLDG1005-GE28	-3	0.58
HPFF-BLDG1005-GE29	-2	0.08
HPFF-BLDG1005-GE30	-2.5	0.03
HPFF-BLDG1005-GE31	-2	0.20

Each node at Building 1005 had a vacuum and a flow rate consistent with effective VIMS operation. Long-term differential pressure monitoring was completed at Building 1005 at HPFF-SG35, located centrally within Building 1005 over a 7-day period. The data collected during this monitoring indicated that Building 1005 has a constant negative subslab to indoor pressure differential. This data shows that the VIMS at Building 1005 is working to

effectively depressurize the subslab. A full summary of the long-term differential pressure monitoring including graphs is included in **Graph 1.**

There were no constituents detected above the IASL in the Indoor air sample collected during the first round of monitoring. Concentrations of Freon-12, acetone, methylene chloride, 2-butanone, and methyl-tert-butyl-ether were detected in the exhaust samples. Based on the data presented above, the VIMS is operating effectively.

Building 1115

There are 2 VIMS node installed in Building 1115. The location of each VIMS node is presented on **Figure 7.** Flow rate and vacuum measurements were collected from each node during the first round of performance monitoring. The flow rates and vacuum measurements are provided in **Table 9.**

Table 9

Vapor Intrusion Mitigation System Flow Measurements – Building 1115
VIMS Performance Monitoring – Round 1

VIMS Node ID	Vacuum (“wc)	Flow Rate (ft3/sec)
HPFF-BLDG1115-GE01	-28	0.41
HPFF-BLDG1115-GE01	-28	0.50

Each node at Building 1115 had a vacuum and a flow rate consistent with effective VIMS operation. The differential pressure measurement collected from HPFF- SG04, located centrally within the building, indicated a negative subslab to indoor pressure differential greater than -.25 “wc. Long-term differential pressure monitoring could not be completed since the differential pressure exceeded the upper range of the monitoring equipment. However, the equipment did provide data indicating the VIMS is effectively depressurizing the subslab given that the target differential pressure is -0.01 ”wc.

Benzene, ethylbenzene, and m-p, xylene were the only constituents detected in exceedance of the IASL in the indoor air sample collected during the first round of performance monitoring in Building 1115. The m-p, xylene concentration does not exceed the non-adjusted IASL (100 ppbv) which is a more accurate risk based screening level since there are no other non-cancer constituents exceeding the IASLs. The concentrations of benzene, ethylbenzene, and m-p, xylene were greater than those seen in the concurrent outdoor air samples. This building is used as maintenance and storage area for small engine equipment including, weed eaters, generators, and lawn mowers. Benzene and m-p, xylene are found in products that are stored and used within this building.

A HAPSITE portable GC/MS was used to determine if the elevated indoor air concentrations detected during the first round of performance monitoring were from an indoor source and not due to VI. During the evaluation elevated indoor air concentrations of petroleum related constituents were noted in the vicinity of the generators and the other small engines stored in the building. This data indicates that the elevated indoor air concentrations are due to operations within the building and not due to VI. Based on the data presented above, the VIMS is operating effectively.

Conclusions and Recommendations

Based on the pressure differential, indoor air, and flow rate data collected during the first round of performance monitoring the VIMS at Building 3, 3B, 37, 43, 902, 1005, and 1115 are all working to effectively de-pressurize the subslab of each building and mitigate the potential for VI impacts to indoor air.

The data collected from Building 902 during the performance monitoring indicate that the VIMS is effectively depressurizing the subslab. However, the elevated indoor air concentrations leave some uncertainties in the lines of evidence that conclude the VIMS is effectively mitigating the potential for VI impacts to indoor air. Additional investigations at Building 902 are planned to strengthen the lines of evidence. This investigation will include

further subslab to indoor air pressure differential monitoring throughout the entire building, a HAPSITE survey to identify potential indoor air sources and vapor entry points, vacuum and air flow modeling using the post start-up VIMS monitoring data, and passive collection of indoor air samples near the VIMS stacks and at 3 additional locations throughout the building..

In accordance with the VIMS Work Plan, three additional rounds of performance monitoring will be conducted during the first year of operation. Upon completion of all four rounds of monitoring a report will be submitted to all stakeholders summarizing the data of the performance monitoring along with conclusions and recommendations.

Tables

Figures

Graphs

References

CH2M HILL. 2009. *Phase I and II Vapor Intrusion Evaluation Report, Marine Corps Base Camp Lejeune.* November.

CH2M HILL. 2011a. *Vapor Intrusion Mitigation System Pilot Study Work Plan, Marine Corps Base Camp Lejeune.* September.

CH2M HILL. 2011b. *Phase III Vapor Intrusion Evaluation Report, Marine Corps Base Camp Lejeune.* October.

U.S. Environmental Protection Agency (USEPA). 1991. *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors, OSWER Directive 9285.6-03.* March.

USEPA. 2010. *Regional Screening Levels for Chemical Contaminants at Superfund Sites*. November. Available at http://epa-prgs.ornl.govchemicals/index .shtml

Tables

Table 1
Exhaust Analytical Results
MCIEAST - MCBCAMLEJ North Carolina

Building	**Building 1115**			**Building 1005**				
Sample ID	BLDG1115-HPFF-GE01-12A	BLDG1115-HPFF-GE01D-12A	BLDG1115-HPFF-GE02-12A	HPFF-BLDG1005-GE01-12A	HPFF-BLDG1005-GE02-12A	HPFF-BLDG1005-GE03-12A	HPFF-BLDG1005-GE04-12A	HPFF-BLDG1005-GE05-12A
Sample Date	3/5/12	3/5/12	3/5/12	3/20/12	3/22/12	3/22/12	3/21/12	3/21/12
Chemical Name								
Air Testing (UG/M3)								
1,1,2,2-Tetrachloroethane	120 J	270 U	190 J	270 U	270 U	270 U	270 U	270 U
1,2,4-Trichlorobenzene	260 JB	210 JB	260 JB	300 U	140 J	300 U	300 U	300 U
1,2-Dichloropropane	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
2-Butanone	120 U	120 U	120 U	120 U	160	120 U	90 J	120 U
2-Hexanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
4-Methyl-2-pentanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Acetone	95 U	95 U	37 J	74 J	120	44 J	110	54 J
Benzene	1,600	1,000	310	130 U	130 U	130 U	130 U	130 U
Carbon disulfide	62 J	43 J	110 J	120 U	120 U	120 U	120 U	120 U
Chlorobenzene	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
cis-1,2-Dichloroethene	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Cyclohexane	920	580	270	140 U	140 U	140 U	140 U	140 U
Dichlorodifluoromethane (Freon-12)	200 U	200 U	200 U	200 U	1,300	200 U	140 J	200 U
Ethylbenzene	140 J	130 J	290	170 U	170 U	170 U	170 U	170 U
m- and p-Xylene	3,800	3,400	5,800	350 U	350 U	350 U	350 U	350 U
Methylene chloride	64 J	52 J	56 J	62 J	86 J	56 J	74 J	68 J
o-Xylene	4,700	4,300	4,600	170 U	170 U	170 U	170 U	170 U
Styrene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Tetrachloroethene	710	240 J	290	270 U	270 U	270 U	270 U	270 U
Toluene	2,800	2,300	1,200	29 J	150 U	150 U	150 U	150 U
Trichloroethene	210 U	210 U	210 U	210 U	210 U	210 U	210 U	210 U
Vinyl chloride	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Xylene, total	8,500	7,700	10,000	170 U	170 U	170 U	170 U	170 U

Notes:

B - The analyte was detected in the associated method blank

E - Value is estimated due to matrix interferences (Inorganic)

J - Analyte present. Value may or may not be accurate or precise

NS - Not sampled

U - The material was analyzed for, but not detected

UG/M3 - Micrograms per cubic meter

Shading indicates detection

Table 1
Exhaust Analytical Results
MCIEAST - MCBCAMLEJ North Carolina

Building	**Building 1005**						
Sample ID	HPFF-BLDG1005-GE06-12A	HPFF-BLDG1005-GE06D-12A	HPFF-BLDG1005-GE07-12A	HPFF-BLDG1005-GE08-12A	HPFF-BLDG1005-GE09-12A	HPFF-BLDG1005-GE10-12A	HPFF-BLDG1005-GE11-12A
Sample Date	3/21/12	3/21/12	3/21/12	3/21/12	3/21/12	3/21/12	3/22/12
Chemical Name							
Air Testing (UG/M3)							
1,1,2,2-Tetrachloroethane	270 U	270 U	270 U	270 U	270 U	270 U	270 U
1,2,4-Trichlorobenzene	300 U	300 U	300 U	300 U	300 U	300 U	300 U
1,2-Dichloropropane	180 U	180 U	180 U	180 U	180 U	180 U	180 U
2-Butanone	300	520	180	120 U	120 U	120 U	120 U
2-Hexanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U
4-Methyl-2-pentanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Acetone	580	790	250	54 J	51 J	57 J	66 J
Benzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Carbon disulfide	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Chlorobenzene	180 U	180 U	180 U	180 U	180 U	180 U	180 U
cis-1,2-Dichloroethene	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Cyclohexane	140 U	140 U	140 U	140 U	140 U	140 U	240
Dichlorodifluoromethane (Freon-12)	200 U	200 U	110 J	200 U	200 U	270	200 U
Ethylbenzene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
m- and p-Xylene	350 U	350 U	350 U	350 U	350 U	350 U	350 U
Methylene chloride	76 J	55 J	65 J	88 J	59 J	59 J	67 J
o-Xylene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Styrene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Tetrachloroethene	270 U	270 U	270 U	270 U	270 U	270 U	270 U
Toluene	150 U	150 U	150 U	150 U	150 U	150 U	150 U
Trichloroethene	210 U	210 U	210 U	210 U	210 U	210 U	210 U
Vinyl chloride	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Xylene, total	170 U	170 U	170 U	170 U	170 U	170 U	170 U

Notes:

B - The analyte was detected in the associated method blank

E - Value is estimated due to matrix interferences (Inorganic)

J - Analyte present. Value may or may not be accurate or precise

NS - Not sampled

U - The material was analyzed for, but not detected

UG/M3 - Micrograms per cubic meter

Shading indicates detection

Table 1
Exhaust Analytical Results
MCIEAST - MCBCAMLEJ North Carolina

Building	**Building 1005**						
Sample ID	HPFF-BLDG1005-GE12-12A	HPFF-BLDG1005-GE13-12A	HPFF-BLDG1005-GE14-12A	HPFF-BLDG1005-GE15-12A	HPFF-BLDG1005-GE16-12A	HPFF-BLDG1005-GE17-12A	HPFF-BLDG1005-GE18-12A
Sample Date	3/22/12	3/21/12	3/21/12	3/20/12	3/20/12	3/20/12	3/20/12
Chemical Name							
Air Testing (UG/M3)							
1,1,2,2-Tetrachloroethane	270 U	270 U	270 U	270 U	270 U	270 U	270 U
1,2,4-Trichlorobenzene	300 U	300 U	300 U	300 U	120 J	300 U	300 U
1,2-Dichloropropane	180 U	180 U	180 U	180 U	180 U	180 U	180 U
2-Butanone	120 U	42 J	120 U	190	120 U	120 U	120 U
2-Hexanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U
4-Methyl-2-pentanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Acetone	42 J	290	83 J	3,000	110	64 J	80 J
Benzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Carbon disulfide	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Chlorobenzene	180 U	180 U	180 U	180 U	180 U	180 U	180 U
cis-1,2-Dichloroethene	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Cyclohexane	810	140 U	140 U	140 U	140 U	140 U	140 U
Dichlorodifluoromethane (Freon-12)	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Ethylbenzene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
m- and p-Xylene	350 U	350 U	350 U	350 U	350 U	350 U	350 U
Methylene chloride	66 J	84 J	110 J	78 J	330	57 J	61 J
o-Xylene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Styrene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Tetrachloroethene	270 U	270 U	270 U	270 U	270 U	270 U	270 U
Toluene	150 U	150 U	150 U	150 U	28 J	150 U	30 J
Trichloroethene	210 U	210 U	210 U	210 U	210 U	210 U	210 U
Vinyl chloride	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Xylene, total	170 U	170 U	170 U	170 U	170 U	170 U	170 U

Notes:

B - The analyte was detected in the associated method blank

E - Value is estimated due to matrix interferences (Inorganic)

J - Analyte present. Value may or may not be accurate or precise

NS - Not sampled

U - The material was analyzed for, but not detected

UG/M3 - Micrograms per cubic meter

Shading indicates detection

Table 1
Exhaust Analytical Results
MCIEAST - MCBCAMLEJ North Carolina

Building	**Building 1005**						
Sample ID	HPFF-BLDG1005-GE18D-12A	HPFF-BLDG1005-GE19-12A	HPFF-BLDG1005-GE20-12A	HPFF-BLDG1005-GE21-12A	HPFF-BLDG1005-GE22-12A	HPFF-BLDG1005-GE23-12A	HPFF-BLDG1005-GE24-12A
Sample Date	3/20/12	3/20/12	3/20/12	3/21/12	3/21/12	3/21/12	3/21/12
Chemical Name							
Air Testing (UG/M3)							
1,1,2,2-Tetrachloroethane	270 U	270 U	270 U	270 U	270 U	270 U	270 U
1,2,4-Trichlorobenzene	300 U	300 U	300 U	300 U	300 U	300 U	300 U
1,2-Dichloropropane	180 U	180 U	180 U	180 U	180 U	180 U	180 U
2-Butanone	36 J	120 U	120 U	120 U	39 J	120 U	120 U
2-Hexanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U
4-Methyl-2-pentanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Acetone	89 J	60 J	70 J	67 J	73 J	61 J	49 J
Benzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Carbon disulfide	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Chlorobenzene	180 U	180 U	180 U	180 U	180 U	180 U	180 U
cis-1,2-Dichloroethene	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Cyclohexane	140 U	140 U	140 U	140 U	140 U	140 U	140 U
Dichlorodifluoromethane (Freon-12)	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Ethylbenzene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
m- and p-Xylene	350 U	350 U	350 U	350 U	350 U	350 U	350 U
Methylene chloride	65 J	64 J	57 J	100 J	62 J	54 J	46 J
o-Xylene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Styrene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Tetrachloroethene	270 U	270 U	270 U	270 U	270 U	270 U	270 U
Toluene	150 U	150 U	150 U	150 U	150 U	150 U	150 U
Trichloroethene	210 U	210 U	210 U	210 U	210 U	210 U	210 U
Vinyl chloride	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Xylene, total	170 U	170 U	170 U	170 U	170 U	170 U	170 U

Notes:

B - The analyte was detected in the associated method blank

E - Value is estimated due to matrix interferences (Inorganic)

J - Analyte present. Value may or may not be accurate or precise

NS - Not sampled

U - The material was analyzed for, but not detected

UG/M3 - Micrograms per cubic meter

Shading indicates detection

Table 1
Exhaust Analytical Results
MCIEAST - MCBCAMLEJ North Carolina

Building	**Building 1005**							
Sample ID	HPFF-BLDG1005-GE25-12A	HPFF-BLDG1005-GE26-12A	HPFF-BLDG1005-GE26D-12A	HPFF-BLDG1005-GE27-12A	HPFF-BLDG1005-GE28-12A	HPFF-BLDG1005-GE29-12A	HPFF-BLDG1005-GE29D-12A	HPFF-BLDG1005-GE30-12A
Sample Date	3/20/12	3/20/12	3/20/12	3/20/12	3/23/12	3/23/12	3/23/12	3/22/12
Chemical Name								
Air Testing (UG/M3)								
1,1,2,2-Tetrachloroethane	270 U	270 U	270 U	270 U	270 U	270 U	270 U	270 U
1,2,4-Trichlorobenzene	300 U	300 U	300 U	300 U	300 U	300 U	300 U	300 U
1,2-Dichloropropane	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
2-Butanone	120 U	120 U	120 U	120 U	120 U	39 J	120 U	120 U
2-Hexanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
4-Methyl-2-pentanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Acetone	66 J	55 J	55 J	73 J	100	100	80 J	54 J
Benzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Carbon disulfide	120 U	120 U	120 U	120 U	33 J	34 J	34 J	120 U
Chlorobenzene	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
cis-1,2-Dichloroethene	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Cyclohexane	140 U	140 U	140 U	140 U	140 U	140 U	140 U	140 U
Dichlorodifluoromethane (Freon-12)	160 J	180 J	180 J	150 J	200 U	400	490	100 J
Ethylbenzene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
m- and p-Xylene	350 U	350 U	350 U	350 U	350 U	350 U	350 U	350 U
Methylene chloride	67 J	74 J	61 J	67 J	200	150	170	110 J
o-Xylene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Styrene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Tetrachloroethene	270 U	270 U	270 U	270 U	270 U	270 U	270 U	270 U
Toluene	58 J	42 J	27 J	40 J	150 U	27 J	150 U	150 U
Trichloroethene	210 U	210 U	210 U	210 U	210 U	210 U	210 U	210 U
Vinyl chloride	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Xylene, total	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U

Notes:

B - The analyte was detected in the associated method blank

E - Value is estimated due to matrix interferences (Inorganic)

J - Analyte present. Value may or may not be accurate or precise

NS - Not sampled

U - The material was analyzed for, but not detected

UG/M3 - Micrograms per cubic meter

Shading indicates detection

Table 1
Exhaust Analytical Results
MCIEAST - MCBCAMLEJ North Carolina

Building	**Building 1005**	**Building 902**						
Sample ID	HPFF-BLDG1005-GE31-12A	IR78N-BLDG902-GE01-12A	IR78N-BLDG902-GE02-12A	IR78N-BLDG902-GE03-12A	IR78N-BLDG902-GE04-12A	IR78N-BLDG902-GE05-12A	IR78N-BLDG902-GE06-12A	IR78N-BLDG902-GE07-12A
Sample Date	3/20/12	3/22/12	3/22/12	3/22/12	3/22/12	3/22/12	3/23/12	3/23/12
Chemical Name								
Air Testing (UG/M3)								
1,1,2,2-Tetrachloroethane	270 U	270 U	270 U	270 U	270 U	270 U	270 U	270 U
1,2,4-Trichlorobenzene	300 U	90 J	300 U	300 U	300 U	300 U	300 U	300 U
1,2-Dichloropropane	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
2-Butanone	120 U	50 J	150	120 U	38 J	120 U	120 U	120 U
2-Hexanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
4-Methyl-2-pentanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Acetone	67 J	84 J	910	110	100	95	600	62 J
Benzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Carbon disulfide	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Chlorobenzene	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
cis-1,2-Dichloroethene	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Cyclohexane	140 U	140 U	140 U	140 U	140 U	140 U	140 U	140 U
Dichlorodifluoromethane (Freon-12)	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Ethylbenzene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
m- and p-Xylene	350 U	350 U	350 U	350 U	350 U	350 U	350 U	350 U
Methylene chloride	57 J	110 J	140	190	78 J	110 J	98 J	71 J
o-Xylene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Styrene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Tetrachloroethene	270 U	270 U	270 U	270 U	270 U	270 U	270 U	270 U
Toluene	46 J	150 U	150 U	34 J	150 U	28 J	40 J	150 U
Trichloroethene	210 U	210 U	210 U	210 U	210 U	210 U	210 U	210 U
Vinyl chloride	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Xylene, total	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U

Notes:

B - The analyte was detected in the associated method blank

E - Value is estimated due to matrix interferences (Inorganic)

J - Analyte present. Value may or may not be accurate or precise

NS - Not sampled

U - The material was analyzed for, but not detected

UG/M3 - Micrograms per cubic meter

Shading indicates detection

Table 1
Exhaust Analytical Results
MCIEAST - MCBCAMLEJ North Carolina

Building	**Building 902**							
Sample ID	IR78N-BLDG902-GE08-12A	IR78N-BLDG902-GE09-12A	IR78N-BLDG902-GE10-12A	IR78N-BLDG902-GE10D-12A	IR78N-BLDG902-GE11-12A	IR78N-BLDG902-GE12-12A	IR78N-BLDG902-GE13-12A	IR78N-BLDG902-GE14-12A
Sample Date	3/22/12	3/22/12	3/22/12	3/22/12	3/23/12	3/28/12	3/23/12	3/23/12
Chemical Name								
Air Testing (UG/M3)								
1,1,2,2-Tetrachloroethane	270 U	270 U	270 U	270 U	270 U	270 U	270 U	270 U
1,2,4-Trichlorobenzene	300 U	300 U	300 U	300 U	300 U	300 U	300 U	300 U
1,2-Dichloropropane	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
2-Butanone	120 U	120 U	120 U	120 U	120 U	3,600	59 J	120 U
2-Hexanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
4-Methyl-2-pentanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Acetone	71 J	89 J	97	96	54 J	4,000	220	130
Benzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Carbon disulfide	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Chlorobenzene	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
cis-1,2-Dichloroethene	160 U	160 U	110 J	150 J	160 U	160 U	160 U	770
Cyclohexane	140 U	140 U	140 U	140 U	140 U	140 U	140 U	140 U
Dichlorodifluoromethane (Freon-12)	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Ethylbenzene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
m- and p-Xylene	350 U	350 U	350 U	350 U	350 U	350 U	350 U	350 U
Methylene chloride	73 J	65 J	74 J	59 J	140	81 J	120 J	100 J
o-Xylene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Styrene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Tetrachloroethene	270 U	270 U	270 U	270 U	270 U	270 U	270 U	270 U
Toluene	150 U	150 U	150 U	150 U	150 U	35 J	150 U	34 J
Trichloroethene	210 U	210 U	210 U	46 J	210 U	210 U	210 U	2,100
Vinyl chloride	100 U	100 U	66 J	75 J	100 U	100 U	100 U	100 U
Xylene, total	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U

Notes:

B - The analyte was detected in the associated method blank

E - Value is estimated due to matrix interferences (Inorganic)

J - Analyte present. Value may or may not be accurate or precise

NS - Not sampled

U - The material was analyzed for, but not detected

UG/M3 - Micrograms per cubic meter

Shading indicates detection

Table 1
Exhaust Analytical Results
MCIEAST - MCBCAMLEJ North Carolina

Building	Building 902	Building 37					
Sample ID	IR78N-BLDG902-GE15-12A	IR88-BLDG37-GE01-12A	IR88-BLD37-GE02-12A	IR88-BLDG37-GE03-12A	IR88-BLDG37-GE04-12A	IR88-BLDG37-GE05-12A	IR88-BLDG37-GE06-12A
Sample Date	3/28/12	3/23/12	3/28/12	3/23/12	3/29/12	3/23/12	3/23/12
Chemical Name							
Air Testing (UG/M3)							
1,1,2,2-Tetrachloroethane	270 U	270 U	270 U	270 U	270 U	270 U	270 U
1,2,4-Trichlorobenzene	100 J	300 U	300 U	300 U	300 U	110 J	300 U
1,2-Dichloropropane	180 U	180 U	180 U	180 U	180 U	180 U	180 U
2-Butanone	120 U	120 U	61 J	120 U	120 U	120 U	120 U
2-Hexanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U
4-Methyl-2-pentanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Acetone	78 J	47 J	160	41 J	73 J	33 J	34 J
Benzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Carbon disulfide	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Chlorobenzene	180 U	180 U	180 U	180 U	180 U	180 U	180 U
cis-1,2-Dichloroethene	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Cyclohexane	140 U	140 U	140 U	140 U	140 U	140 U	140 U
Dichlorodifluoromethane (Freon-12)	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Ethylbenzene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
m- and p-Xylene	350 U	350 U	350 U	350 U	350 U	350 U	350 U
Methylene chloride	77 J	89 J	140	79 J	130 J	64 J	73 J
o-Xylene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Styrene	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Tetrachloroethene	270 U	190 J	61 J	270 U	270 U	270 U	270 U
Toluene	36 J	150 U	48 J	150 U	27 J	150 U	150 U
Trichloroethene	51 J	210 U	210 U	210 U	210 U	210 U	210 U
Vinyl chloride	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Xylene, total	170 U	170 U	170 U	170 U	170 U	170 U	170 U

Notes:

B - The analyte was detected in the associated method blank

E - Value is estimated due to matrix interferences (Inorganic)

J - Analyte present. Value may or may not be accurate or precise

NS - Not sampled

U - The material was analyzed for, but not detected

UG/M3 - Micrograms per cubic meter

Shading indicates detection

Table 1
Exhaust Analytical Results
MCIEAST - MCBCAMLEJ North Carolina

Building	Building 3B					Building 3		
Sample ID	IR88-BLDG3B-GE01-12A	IR88-BLDG3B-GE02-12A	IR88-BLDG3B-GE03-12A	IR88-BLDG3B-GE04-12A	IR88-BLDG3B-GE04D-12A	IR88-BLDG3-GE01-12A	BLDG3-88-GE02-12A	BLDG3-88-GE02D-12A
Sample Date	3/7/12	3/7/12	3/7/12	3/7/12	3/7/12	3/6/12	3/5/12	3/5/12
Chemical Name								
Air Testing (UG/M3)								
1,1,2,2-Tetrachloroethane	270 U	270 U	270 U	270 U	270 U	270 U	270 U	270 U
1,2,4-Trichlorobenzene	300 U	300 U	300 U	300 U	300 U	200 JB	260 JB	250 JB
1,2-Dichloropropane	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
2-Butanone	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2-Hexanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
4-Methyl-2-pentanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Acetone	68 J	380	240	44 J	42 J	53 J	61 J	60 J
Benzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Carbon disulfide	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Chlorobenzene	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
cis-1,2-Dichloroethene	48 J	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Cyclohexane	140 U	140 U	140 U	140 U	140 U	140 U	140 U	140 U
Dichlorodifluoromethane (Freon-12)	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Ethylbenzene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
m- and p-Xylene	350 U	350 U	350 U	350 U	350 U	350 U	350 U	350 U
Methylene chloride	120 J	53 J	58 J	58 J	57 J	63 J	56 J	58 J
o-Xylene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	26 J
Styrene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Tetrachloroethene	35,000	11,000	2,500	1,500	2,300	120 J	3,100	2,600
Toluene	150 U	150 U	150 U	150 U	150 U	150 U	31 J	100 J
Trichloroethene	160 J	210 U	210 U	210 U	210 U	210 U	210 U	210 U
Vinyl chloride	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Xylene, total	170 U	170 U	170 U	170 U	170 U	170 U	170 U	89 J

Notes:

B - The analyte was detected in the associated method blank

E - Value is estimated due to matrix interferences (Inorganic)

J - Analyte present. Value may or may not be accurate or precise

NS - Not sampled

U - The material was analyzed for, but not detected

UG/M3 - Micrograms per cubic meter

Shading indicates detection

Table 1
Exhaust Analytical Results
MCIEAST - MCBCAMLEJ North Carolina

Building	Building 3						Building 43		Building 43
Sample ID	IR88-BLDG3-GE03-12A	BLDG3-88-GE04-12A	IR88-BLDG3-GE05-12A	IR88-BLDG3-GE06-12A	IR88-BLDG3-GE07-12A	IR88-BLDG3-GE08-12A	IR88-BLDG43-GE01-12A	IR88-BLDG43-GE02-12A	IR88-BLDG43-GE03-12A
Sample Date	3/6/12	3/5/12	3/6/12	3/6/12	3/6/12	3/6/12	3/7/12	3/7/12	3/7/12
Chemical Name									
Air Testing (UG/M3)									
1,1,2,2-Tetrachloroethane	270 U	270 U	270 U	270 U	270 U	270 U	270 U	270 U	270 U
1,2,4-Trichlorobenzene	200 JB	220 JB	200 JB	210 JB	190 JB	200 JB	300 U	110 J	300 U
1,2-Dichloropropane	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
2-Butanone	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
2-Hexanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
4-Methyl-2-pentanone	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Acetone	55 J	48 J	40 J	43 J	32 J	40 J	39 J	32 J	49 J
Benzene	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U	130 U
Carbon disulfide	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U	120 U
Chlorobenzene	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
cis-1,2-Dichloroethene	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U
Cyclohexane	140 U	140 U	140 U	140 U	140 U	140 U	140 U	140 U	140 U
Dichlorodifluoromethane (Freon-12)	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Ethylbenzene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
m- and p-Xylene	350 U	350 U	130 J	90 J	350 U	350 U	350 U	350 U	350 U
Methylene chloride	49 J	52 J	47 J	54 J	45 J	48 J	58 J	49 J	53 J
o-Xylene	44 J	170 U	100 J	72 J	28 J	37 J	30 J	170 U	170 U
Styrene	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U	170 U
Tetrachloroethene	360	3,600	250 J	230 J	110 J	150 J	3,100	6,300	3,600
Toluene	150 U	56 J	27 J	150 U	150 U	150 U	150 U	150 U	150 U
Trichloroethene	210 U	210 U	210 U	210 U	210 U	210 U	210 U	160 J	210 U
Vinyl chloride	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Xylene, total	110 J	170 U	230 J	160 J	72 J	89 J	170 U	170 U	170 U

Notes:

B - The analyte was detected in the associated method blank

E - Value is estimated due to matrix interferences (Inorganic)

J - Analyte present. Value may or may not be accurate or precise

NS - Not sampled

U - The material was analyzed for, but not detected

UG/M3 - Micrograms per cubic meter

Shading indicates detection

Table 2
Camp Lejeune - First Round VIMS Performance Monitoring
Validated Indoor and Outdoor Air Analytical Results
March 2012

Building			**Building 1005**			**Building 1115**		
			Indoor Air	Outdoor Air		Indoor Air	Outdoor Air	
Sample ID	**CLEAN RSLs Industrial Air Adjusted 0512**	**CLEAN RSLs Industrial Air 0512**	HPFF-BLDG1005-IA01-12A	HPFF-BLDG1005-OA01-12A	HPFF-BLDG1005-OA02-12A	HPFF-BLDG1115-IA01-12A	HPFF-BLDG1115-OA01-12A	HPFF-BLDG1115-OA02-12A
Sample Date			3/22/12	3/22/12	3/22/12	3/7/12	3/7/12	3/7/12
Chemical Name								
Air Testing (PPBV)								
1,2,4-Trichlorobenzene	0.12	1.2	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
1,4-Dichlorobenzene*	0.18	0.18	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
2-Butanone	750	7500	1.9 J	2.9	6	2.5 U	1 J	2 J
4-Methyl-2-pentanone	320	3200	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
Acetone	5900	59000	24	11	26	9.9	4.3	4.3
Benzene*	0.50	0.50	2.5 U	0.63 J	2.5 U	**9.8**	0.59 J	0.88 J
Carbon disulfide	100	1000	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Cyclohexane	760	7600	2.5 U	2.5 U	2.5 U	4.3	2.5 U	2.5 U
Dichlorodifluoromethane (Freon-12)	8.9	89	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Ethylbenzene*	1.1	1.1	2.5 U	2.5 U	0.5 J	**4**	2.5 U	2.5 U
m- and p-Xylene	10	100	5 U	5 U	1.2 J	15	5 U	5 U
Methylene chloride**	75	350	5.2	4.8	6.6	1.1 J	1.4 J	2.5
o-Xylene	10	100	2.5 U	0.42 J	0.42 J	5.5	2.5 U	0.4 J
Styrene	100	1000	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
Tetrachloroethene**	2.6	6.9	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
Toluene	580	5800	0.77 J	3.5	7.6 J	24	0.9 J	2.8
Trichloroethene**	0.16	0.56	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
Xylene, total	10	100	2.5 U	1.4 J	1.6 J	**21**	2.5 U	1.4 J

\\Tarheel\Proj\EBL\Navy Clean\Vapor Intrusion\VIMS\VIMS Report\Round 1 TM\Final\[Table_2_CTO-92_VIMS_Val_AR_RDE_tbl.xlsx], Troy Horn, 07/18/2012

Notes:

Bold text indicates exceedance of Adjusted Industrial Air RSLs

Bold Box indicates exceedance of Industrial Air RSLs

RSLs were adjusted for non-carcinogens to account for exposure to ten non-carcinogenic constituents

J - Analyte present. Value may or may not be accurate or precise

PPBV - Parts per billion volume

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

Shading indicates constituent that does not exceed the Industrial Air RSLs adjusted for the number of non-carcinogen constituents exceeding in the sample.

* - screening levels based on a cancer endpoint

** - screening levels based on both cancer and non-cancer endpoints

Table 2
Camp Lejeune - First Round VIMS Performance Monitoring
Validated Indoor and Outdoor Air Analytical Results
March 2012

Building			Building 902			Building 37				
			Indoor Air	Outdoor Air		Indoor Air		Outdoor Air		
Sample ID	**CLEAN RSLs Industrial Air Adjusted 0512**	**CLEAN RSLs Industrial Air 0512**	IR78N-BLDG902-IA01-12A	IR78N-BLDG902-OA01-12A	IR78N-BLDG902-OA02-12A	IR88-BLDG37-IA01-12A	IR88-BLDG37-IA01D-12A	IR88-BLDG37-OA01-12A	IR88-BLDG37-OA01D-12A	IR88-BLDG37-OA02-12A
Sample Date			3/22/12	3/22/12	3/22/12	3/22/12	3/22/12	3/22/12	3/22/12	3/22/12
Chemical Name										
Air Testing (PPBV)										
1,2,4-Trichlorobenzene	0.12	1.2	2.5 U	2.5 U	2.5 U	**0.85 J**	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Dichlorobenzene*	0.18	0.18	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Butanone	750	7500	2.1 J	3.1	11	2 J	8.5 J	4	7.3	1.1 J
4-Methyl-2-pentanone	320	3200	1.5 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.7 J	2.5 U
Acetone	5900	59000	16	27	38	17 J	37	17	38	6.7
Benzene*	0.50	0.50	**1.6 J**	2.5 U	0.94 J	2.5 U	**2.2 J**	2.5 U	2.5 U	2.5 U
Carbon disulfide	100	1000	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	6.2	2.5 U	1.3 J
Cyclohexane	760	7600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Dichlorodifluoromethane (Freon-12)	8.9	89	2.5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Ethylbenzene*	1.1	1.1	1 J	2.5 U	0.65 J	2.5 U	**2 J**	2.5 U	2.5 U	2.5 U
m- and p-Xylene	10	100	3.4 J	5 U	1.7 J	1 J	6 J	5 U	5 U	5 U
Methylene chloride**	75	350	3.5	1.8 J	6.6	1.9 J	18 J	1.1 J	1.3 J	2.5 U
o-Xylene	10	100	1.2 J	2.5 U	0.69 J	0.4 J	2.6 J	2.5 U	2.5 U	2.5 U
Styrene	100	1000	2.5 U	2.5 U	2.5 U	2.5 U	0.69 J	2.5 U	2.5 U	2.5 U
Tetrachloroethene**	2.6	6.9	0.92 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Toluene	580	5800	5.6	0.55 J	6.2	1.9 J	18 J	0.66 J	2.5 U	2.5 U
Trichloroethene**	0.16	0.56	**11**	1.4 J	0.53 J	2.5 U	2.5 U	4.6	2.5 U	2.5 U
Xylene, total	10	100	4.6 J	2.5 U	2.4 J	1.4 J	8.6 J	2.5 U	2.5 U	2.5 U

Notes:

Bold text indicates exceedance of Adjusted Industrial Air RSLs

Bold Box indicates exceedance of Industrial Air RSLs

RSLs were adjusted for non-carcinogens to account for exposure to ten non-carcinogenic constituents

J - Analyte present. Value may or may not be accurate or precise

PPBV - Parts per billion volume

U - The material was analyzed for, but not detected

UJ - Analyte not detected, quantitation limit may be inaccurate

Shading indicates constituent that does not exceed the Industrial Air RSLs adjusted for the number of non-carcinogen constituents exceeding in the sample.

* - screening levels based on a cancer endpoint

** - screening levels based on both cancer and non-cancer endpoints

Table 2
Camp Lejeune - First Round VIMS Performance Monitoring
Validated Indoor and Outdoor Air Analytical Results
March 2012

Building			**Building 3B**	**Building 3**					**Building 43**
			Indoor Air	Indoor Air		Outdoor Air			**Indoor Air**
Sample ID	**CLEAN RSLs Industrial Air Adjusted 0512**	**CLEAN RSLs Industrial Air 0512**	IR88-BLDG3B-IA01-12A	IR88-BLDG3-IA01-12A	IR88-BLDG3-IA01D-12A	IR88-BLDG3-OA01-12A	IR88-BLDG3-OA01D-12A	IR88-BLDG3-OA02-12A	IR88-BLDG43-IA01-12A
Sample Date			3/7/12	3/7/12	3/7/12	3/7/12	3/7/12	3/7/12	3/7/12
Chemical Name									
Air Testing (PPBV)									
1,2,4-Trichlorobenzene	0.12	1.2	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Dichlorobenzene*	0.18	0.18	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	**7.4**
2-Butanone	750	7500	4	1.6 J	2.4 J	0.85 J	2.5 U	1.8 J	7.8
4-Methyl-2-pentanone	320	3200	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Acetone	5900	59000	20	12	13	3.6	2.8	5.4	18
Benzene*	0.50	0.50	0.45 J	0.45 J	0.39 J	0.43 J	0.39 J	0.51 J	**0.65 J**
Carbon disulfide	100	1000	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Cyclohexane	760	7600	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Dichlorodifluoromethane (Freon-12)	8.9	89	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Ethylbenzene*	1.1	1.1	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m- and p-Xylene	10	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methylene chloride**	75	350	2.1 J	1.6 J	1.6 J	1.1 J	0.95 J	2.1 J	4.6
o-Xylene	10	100	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Styrene	100	1000	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Tetrachloroethene**	2.6	6.9	**8.6**	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Toluene	580	5800	2 J	2.5 U	2.5 U	2.5 U	2.5 U	0.96 J	2.7
Trichloroethene**	0.16	0.56	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Xylene, total	10	100	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U

\\Tarheel\Proj\EBL\Navy Clean\Vapor Intrusion\VIMS\VIMS Report\Round 1 TM\Final\[Table_2_CTO-92_VIMS_Val_AR_RDE_tbl.xlsx], Troy Hor

Notes:

Bold text indicates exceedance of Adjusted Industrial Air RSLs

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RSLs were adjusted for non-carcinogens to account for exposure to ten non-carcinogenic constituents

J - Analyte present. Value may or may not be accurate or precise

PPBV - Parts per billion volume

U - The material was analyzed for, but not detected

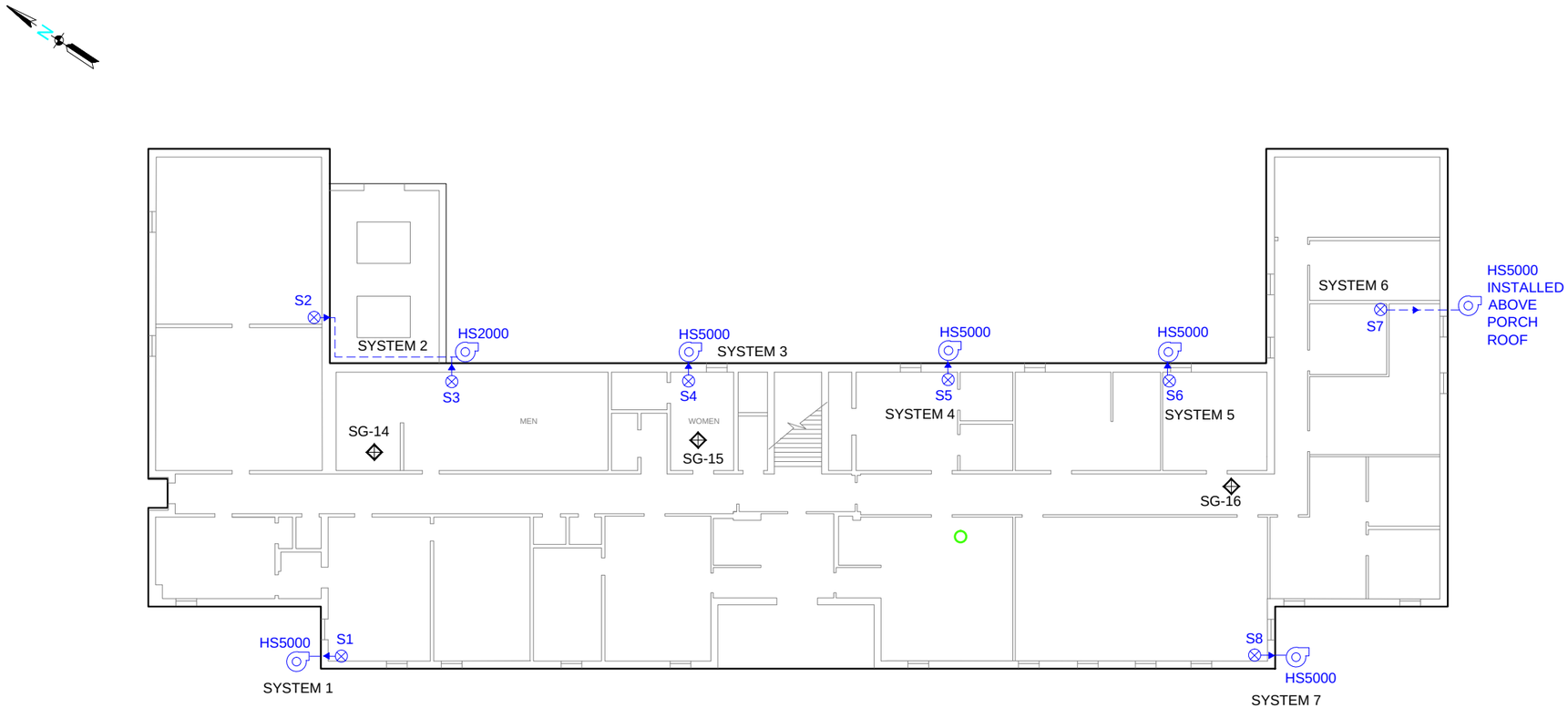
UJ - Analyte not detected, quantitation limit may be inaccurate

Shading indicates constituent that does not exceed the Industrial Air RSLs adjusted for the number of non-carcinogen constituents exceeding in the sample.

* - screening levels based on a cancer endpoint

** - screening levels based on both cancer and non-cancer endpoints

Figures



LEGEND

- 3-INCH DIAMETER PVC PIPING
- SIDE (THROUGH WALL) SUCTION
- SUCTION PIT
- SUCTION FAN
- EXISTING SOIL GAS / PRESSURE MONITORING POINT
- FIRST ROUND PERFORMANCE MONITORING INDOOR AIR SAMPLE LOCATION
- FIRST ROUND PERFORMANCE MONITORING OUTDOOR AIR SAMPLE LOCATION

NOTES:

1. BUILDING 3 IS A TWO STORY BUILDING.
2. ALL FANS TO BE MOUNTED ON EXTERIOR WALL.

NOTE: BUILDING LAYOUT FROM DRAWING PREPARED BY CH2MHILL, DATED OCTOBER, 2010

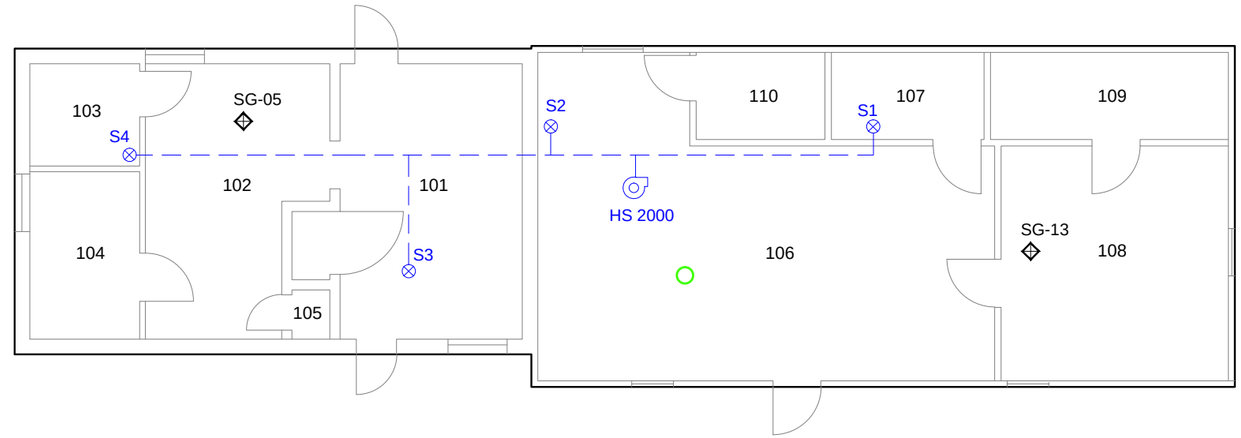
20 0 10 20

1 inch = 20 ft.

FIGURE 1
VIMS FAN & PIPING LAYOUT
BUILDING 3
MCIEAST - MCBCAMLEJ
NORTH CAROLINA

CH2MHILL®

\\tarheel\Proj\EBL\Navy Clean\Vapor Intrusion\VIMS\Design\CADD\Building3



LEGEND

- 3-INCH DIAMETER PVC PIPING (EXITS BUILDING AT BLOWER LOCATION)
- SUCTION PIT
- SUCTION FAN
- EXISTING SOIL GAS / PRESSURE MONITORING POINT
- FIRST ROUND PERFORMANCE MONITORING INDOOR AIR SAMPLE LOCATION
- FIRST ROUND PERFORMANCE MONITORING OUTDOOR AIR SAMPLE LOCATION

NOTE: FAN TO BE ATTIC MOUNTED

NOTE: BUILDING LAYOUT FROM DRAWING PREPARED BY CH2MHILL, DATED OCTOBER, 2010

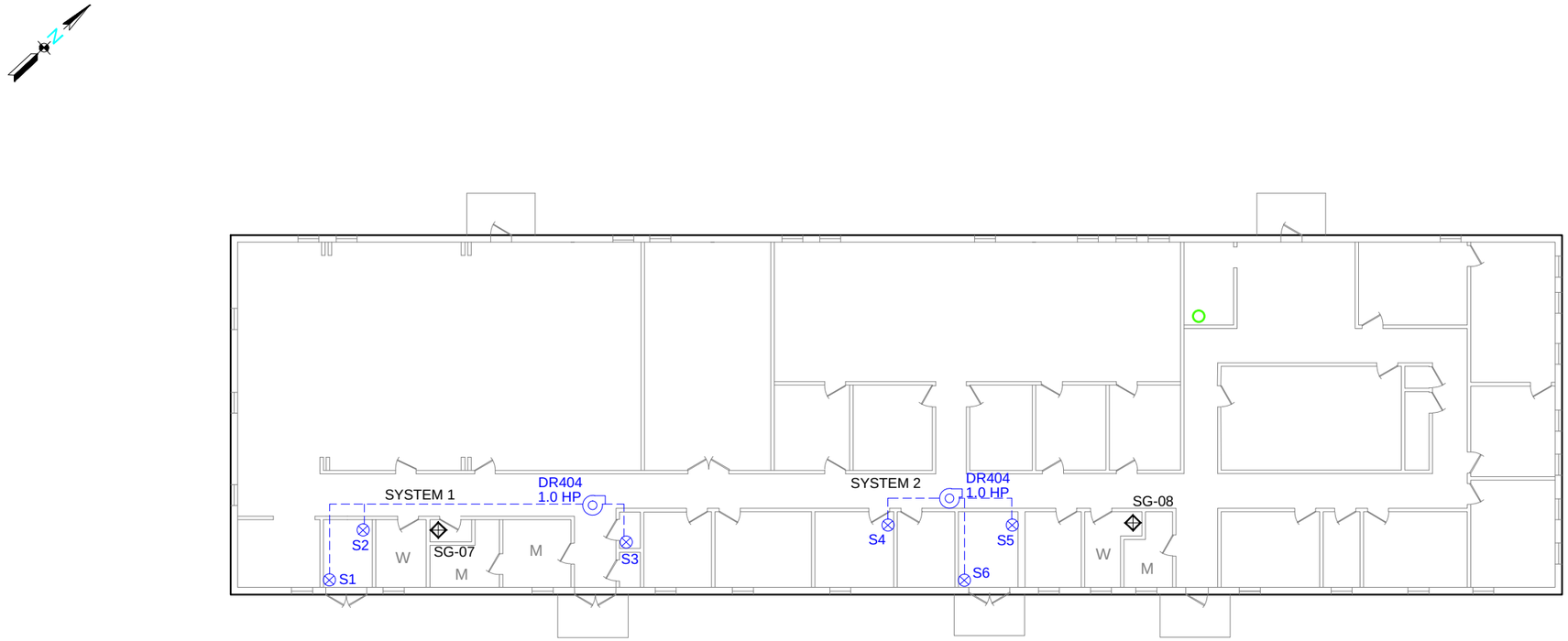
10 0 5 10

1 inch = 10 ft.

FIGURE 2
VIMS FAN & PIPING LAYOUT
BUILDING 3B
MCIEAST - MCBCAMLEJ
NORTH CAROLINA

CH2MHILL®

\\tarheel\Proj\EBL\Navy Clean\Vapor Intrusion\VIMS\Design\CADD\Building3B



NOTE:
FANS TO BE ATTIC MOUNTED. VACUUM RATED HOSE USED IN ATTIC SPACE VS. PVC PIPE.

LEGEND

- 3-INCH DIAMETER PVC PIPING (EXITS BUILDING AT BLOWER LOCATION)
- SUCTION PIT
- SUCTION FAN
- EXISTING SOIL GAS / PRESSURE MONITORING POINT
- FIRST ROUND PERFORMANCE MONITORING INDOOR AIR SAMPLE LOCATION
- FIRST ROUND PERFORMANCE MONITORING OUTDOOR AIR SAMPLE LOCATION

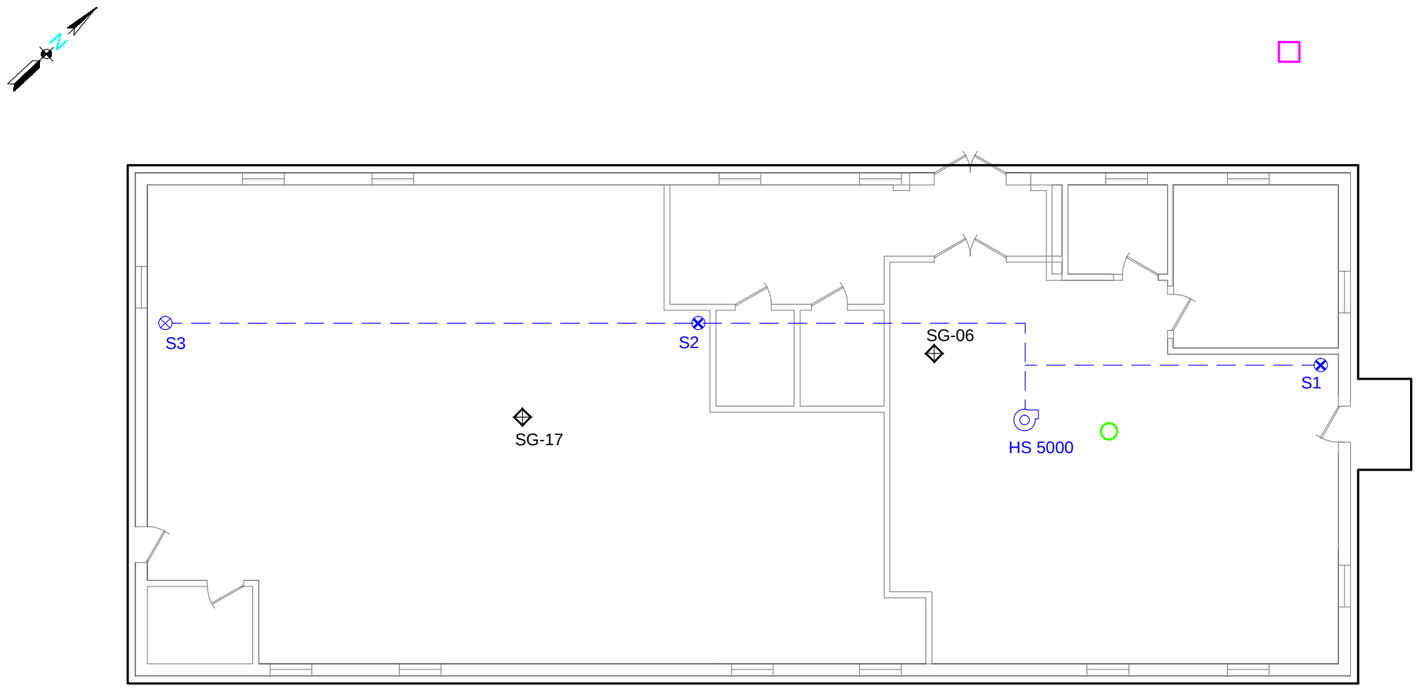
NOTE: BUILDING LAYOUT FROM DRAWING PREPARED BY CH2MHILL, DATED OCTOBER, 2010

20 0 10 20
1 inch = 20 ft.

FIGURE 3
VIMS FAN & PIPING LAYOUT
BUILDING 37
MCIEAST - MCBCAMPLEJ
NORTH CAROLINA

CH2MHILL®

\\tarheel\Proj\EBL\Navy Clean\Vapor Intrusion\VIMS\Design\CADD\Building37



LEGEND

- 3-INCH DIAMETER PVC PIPING (EXITS BUILDING AT BLOWER LOCATION)
- SUCTION PIT
- SUCTION FAN
- EXISTING SOIL GAS / PRESSURE MONITORING POINT
- FIRST ROUND PERFORMANCE MONITORING INDOOR AIR SAMPLE LOCATION
- FIRST ROUND PERFORMANCE MONITORING OUTDOOR AIR SAMPLE LOCATION

NOTE: FAN TO BE ATTIC MOUNTED

NOTE: BUILDING LAYOUT FROM DRAWING PREPARED BY CH2MHILL, DATED OCTOBER, 2010

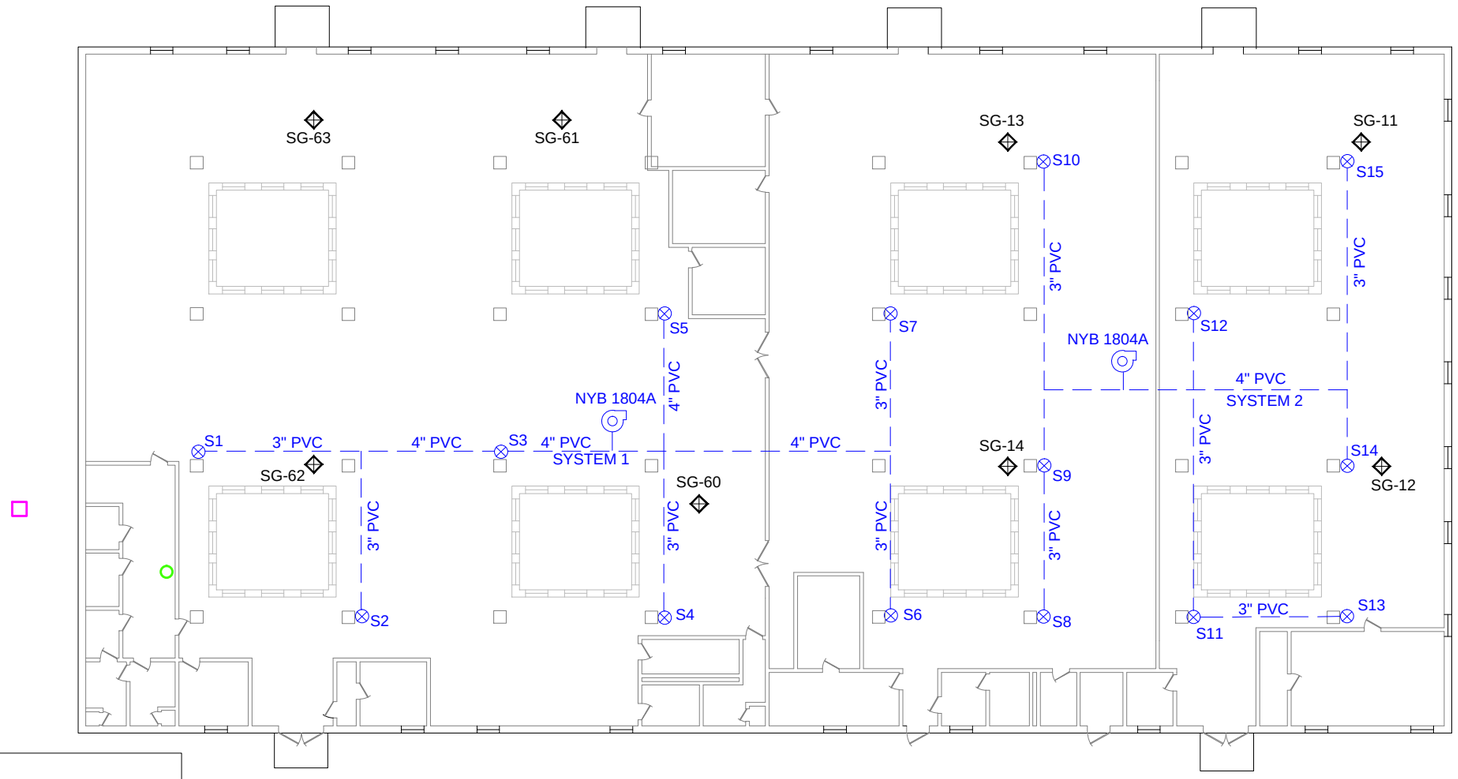
10 0 5 10

1 inch = 10 ft.

FIGURE 4
VIMS FAN & PIPING LAYOUT
BUILDING 43
MCIEAST - MCBCAMPLEJ
NORTH CAROLINA

CH2MHILL®

\\tarheel\Proj\EBL\Navy Clean\Vapor Intrusion\VIMS\Design\CADD\Building43



LEGEND

- COLUMN
- 3-INCH DIAMETER PVC PIPING
- SUCTION PIT
- SUCTION FAN
- EXISTING SOIL GAS / PRESSURE MONITORING POINT
- FIRST ROUND PERFORMANCE MONITORING INDOOR AIR SAMPLE LOCATION
- FIRST ROUND PERFORMANCE MONITORING OUTDOOR AIR SAMPLE LOCATION

NOTE: FANS TO BE ROOF MOUNTED

NOTE: BUILDING LAYOUT FROM DRAWING PREPARED BY CH2MHILL, DATED OCTOBER, 2010

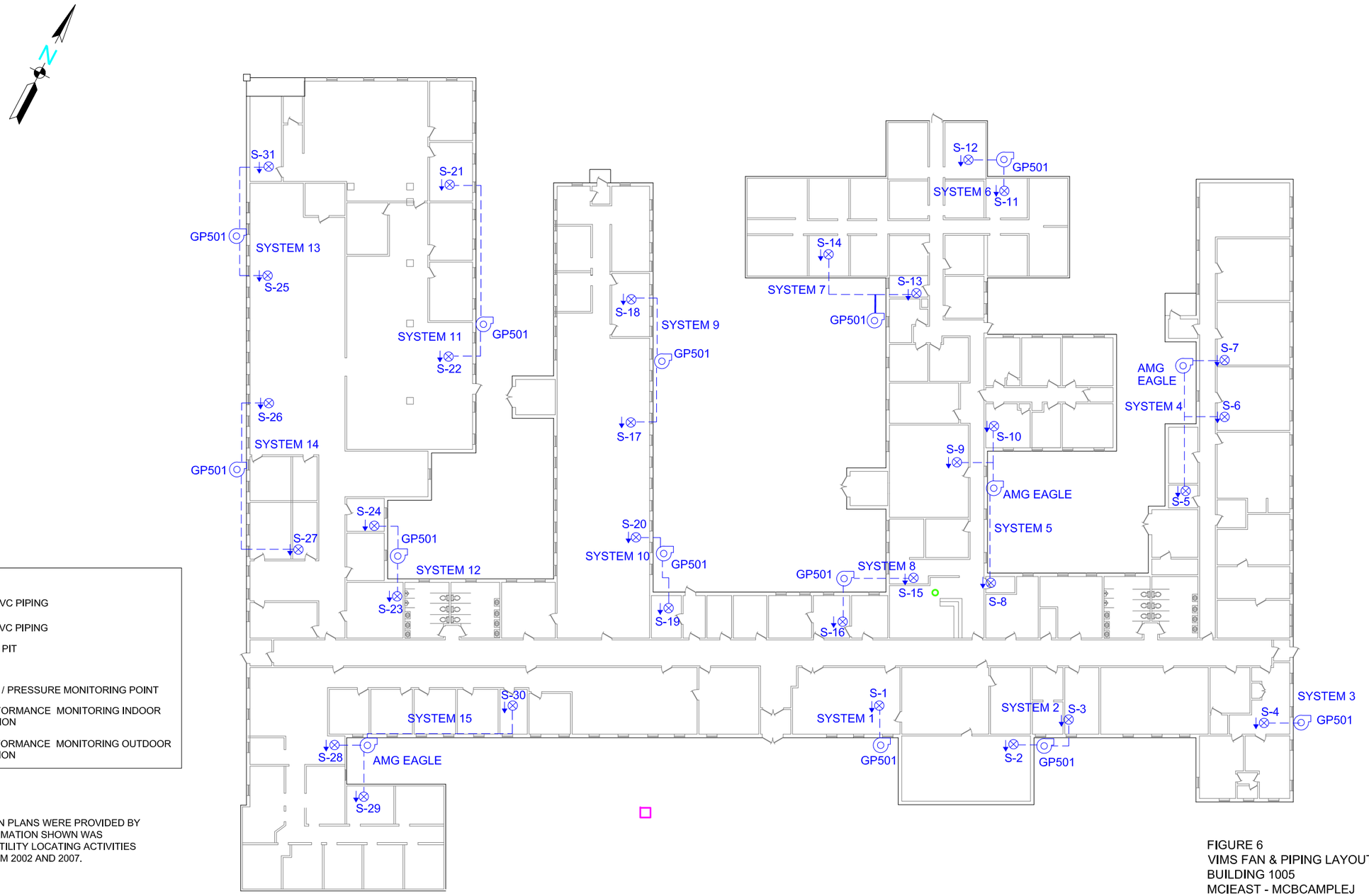
40 0 20 40

1 inch = 40 ft.

FIGURE 5
VIMS FAN & PIPING LAYOUT
BUILDING 902
MCIEAST - MCBCAMPLEJ
NORTH CAROLINA

CH2MHILL®

\\tarheel\Proj\EBL\Navy Clean\Vapor Intrusion\VIMS\Design\CADD\Building902



LEGEND

- 3-INCH DIAMETER PVC PIPING
- 4-INCH DIAMETER PVC PIPING
- SUB-SLAB SUCTION PIT
- SUCTION FAN
- EXISTING SOIL GAS / PRESSURE MONITORING POINT
- FIRST ROUND PERFORMANCE MONITORING INDOOR AIR SAMPLE LOCATION
- FIRST ROUND PERFORMANCE MONITORING OUTDOOR AIR SAMPLE LOCATION

NOTE:

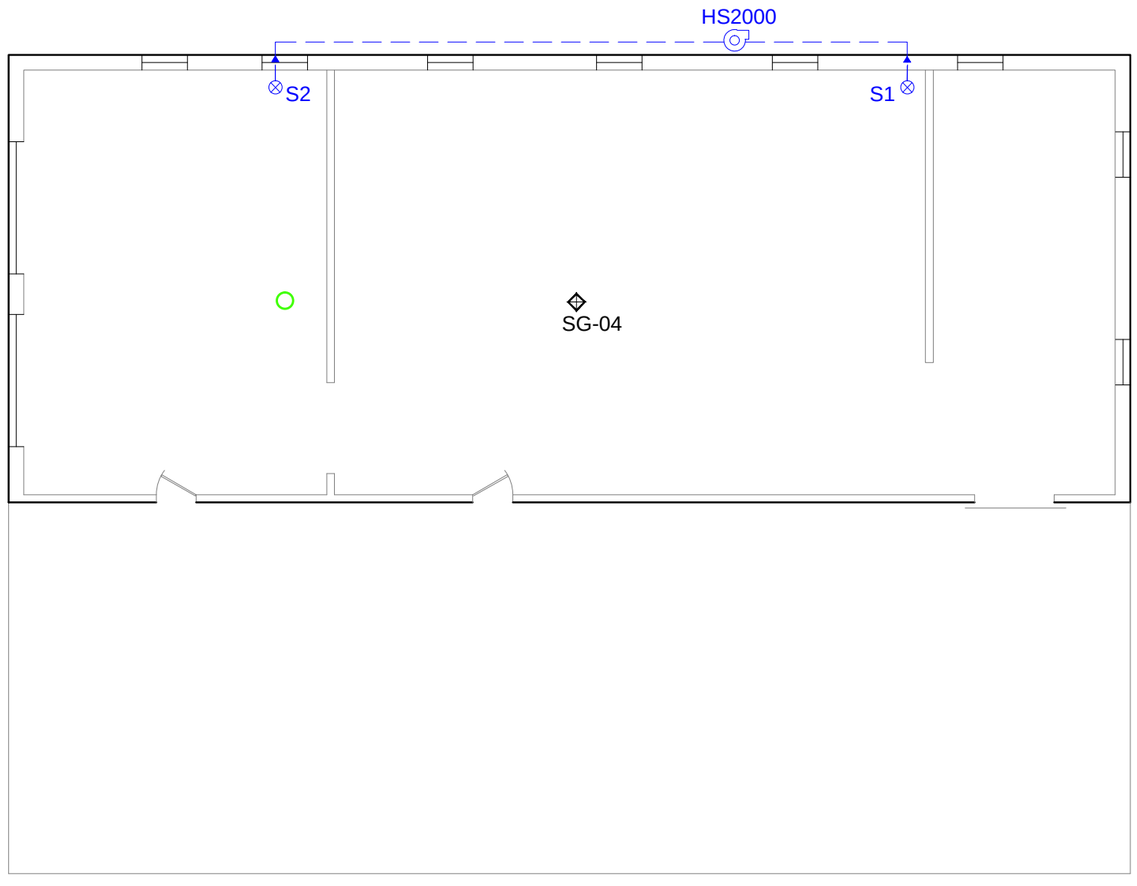
LIMITED FOUNDATION PLANS WERE PROVIDED BY THE US NAVY. INFORMATION SHOWN WAS COLLECTED FROM UTILITY LOCATING ACTIVITIES AND DRAWINGS FROM 2002 AND 2007.

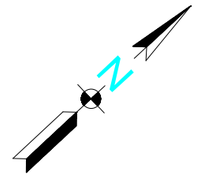
FIGURE 6
VIMS FAN & PIPING LAYOUT
BUILDING 1005
MCIEAST - MCBCAMPLEJ
NORTH CAROLINA

30 0 15 30
1 inch = 30 ft.

NOTE: BUILDING LAYOUT FROM DRAWING PREPARED BY CH2MHILL, DATED OCTOBER, 2010

\\tarheel\Proj\EBL\Navy Clean\Vapor Intrusion\VIMS\Design\CADD\Building1005





LEGEND

- 3-INCH DIAMETER PVC PIPING
- SIDE (THROUGH WALL) SUCTION
- SUCTION FAN
- EXISTING SOIL GAS / PRESSURE MONITORING POINT
- FIRST ROUND PERFORMANCE MONITORING INDOOR AIR SAMPLE LOCATION
- FIRST ROUND PERFORMANCE MONITORING OUTDOOR AIR SAMPLE LOCATION

NOTE: FAN TO BE MOUNTED ON EXTERIOR WALL.

NOTE: BUILDING LAYOUT FROM DRAWING PREPARED BY CH2MHILL, DATED OCTOBER, 2010

10 0 5 10

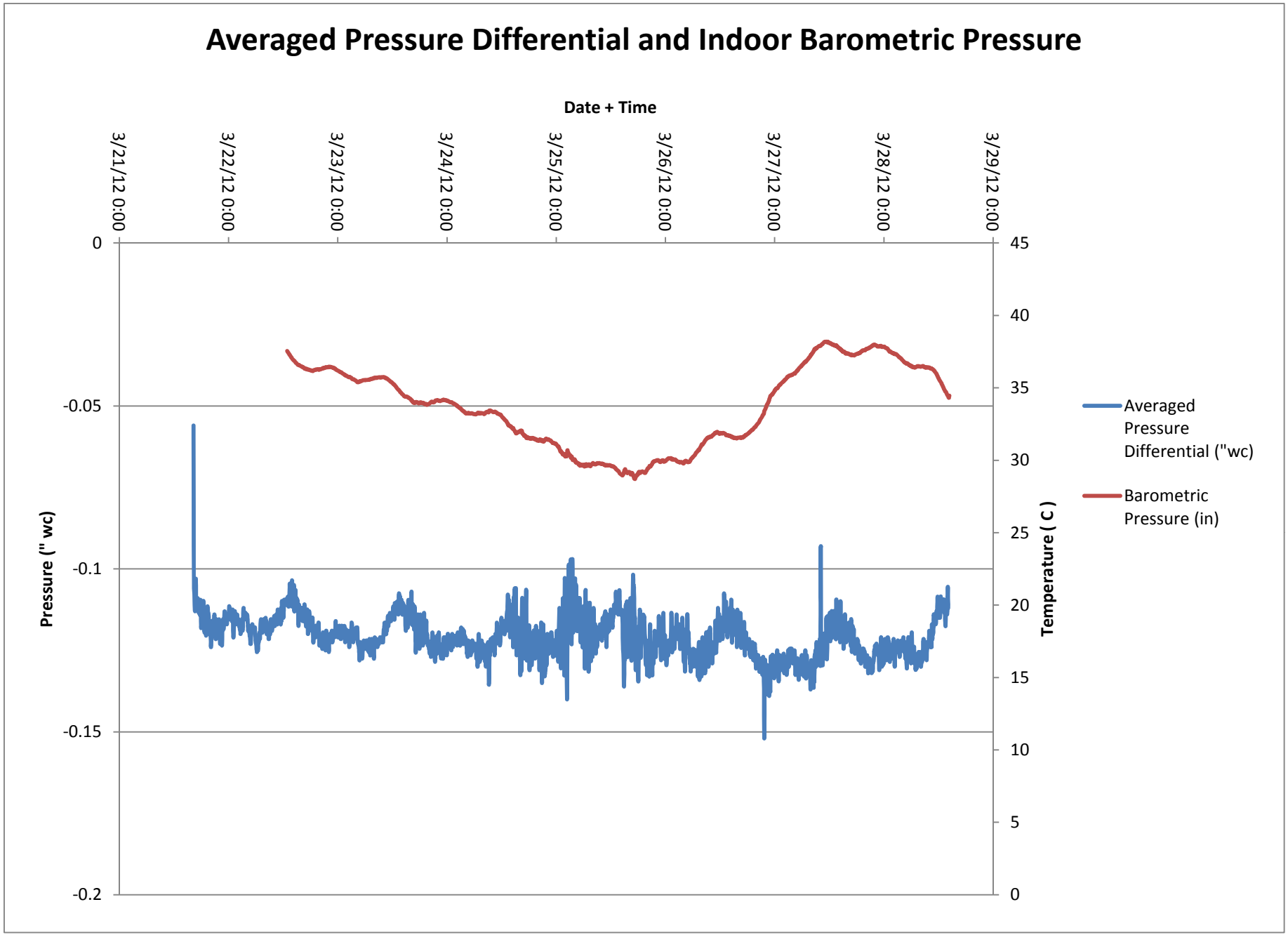
1 inch = 10 ft.

FIGURE 7
VIMS FAN & PIPING LAYOUT
BUILDING 1115
MCIEAST - MCBCAMPLEJ
NORTH CAROLINA

CH2MHILL®

\\tarheel\Proj\EBL\Navy Clean\Vapor Intrusion\VIMS\Design\CADD\Building1115

Graphs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Date + Time
3/21/12 0:00
3/22/12 0:00
3/23/12 0:00
3/24/12 0:00
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3/26/12 0:00
3/27/12 0:00
3/28/12 0:00
3/29/12 0:00
Pressure (" wc)
0
-0.05
-0.1
-0.15
-0.2
Temperature (C)
45
40
35
30
25
20
15
10
5
0
Averaged Pressure Differential ("wc)
Barometric Pressure (in)