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Service: Environmental Testing
Location: Indian Creek Upper School
1130 Anne Chambers Way
Crownsville, MD 21032

Date of Service: 2 October, 2008

Submitted To: Mr. Jack Collins
Director of Engineering
Plasma Air International
360 Connecticut Avenue
Norwalk, Ct 06854

Project Manager: Ron Cain, Industrial Hygienist

FORWARD

The air handling units at Indian Creek School are equipped with Plasma Air bipolar ionization generators to improve the indoor air quality and to allow the reduction of outside air in accordance with the ASHRAE 62.1 IAQ procedure. Ammonia, which is emitted by humans, was used as a tracer gas to verify the effectiveness of the ionization system.

The calculated level of ammonia at a ventilation rate of 15 cfm per person is .622 ppm. In order to meet the requirements of the ASHRAE standard, the level of ammonia at a reduced ventilation rate with ionization must be equal to or below 0.662 ppm.

EXECUTIVE SUMMARY

Environmental testing was conducted as requested for airborne ammonia in three (3) designated classrooms at Indian Creek Upper School, Crownsville, Maryland. The testing for airborne ammonia was conducted using Buck Libra low volume pumps and silica gel sampling tubes with sulfuric acid preservative. The sampling tubes were then delivered to Analytics Corporation, Ashland, VA, for classification using NIOSH 6016 analytical method. The results indicated that airborne ammonia (NH₃) was less than 0.194 ppm. The sampling results are shown in Table 1 of Appendix A.

INTRODUCTION

An environmental assessment was conducted in 3 rooms at the Indian Creek Upper School. The rooms assessed were 237, 227, and 218. The assessment was conducted on 2 October 2008 in accordance with Plasma Air Purchase Order number 092908 dated 29 September 2008. The objectives of the assessment were: (1) to determine the level of airborne ammonia in the classrooms surveyed.

METHODOLOGY

AIRBORNE AMMONIA

The testing for airborne ammonia was conducted using Buck Libra low volume pumps and silica gel sampling tubes with sulfuric acid preservative. The sampling tubes were then delivered to Analytics Corporation, Ashland, Virginia, for analysis using NIOSH 6016 analytical method.

RESULTS / DISCUSSION

AIRBORNE AMMONIA

The results indicate that airborne ammonia was less than 0.194 ppm in all of the three rooms sampled, upon laboratory analysis.

CONCLUSIONS

1. Airborne ammonia was less than 0.194 ppm in all of the three rooms assessed in Indian Creek Upper School, in Crownsville, Maryland.

Should you have any questions concerning these environmental and industrial hygiene studies, please do not hesitate to contact us. It was a pleasure to provide these services for Plasma Air International.

Best regards,

Ron Cain, Industrial Hygienist

Ron Cain, Industrial Hygienist

Lynne G. Elliott, MS, IH, CSHM

Lynne G. Elliott, MS, IH, CSHM
Industrial Hygiene Manager

Appendix A

Table 1 Laboratory Sampling Results, Airborne Ammonia
Analytics Corporation, Ashland, VA

Table 1
Laboratory Sampling Results
Airborne Ammonia
Analytcs Corporation
Ashland, VA

Group No. M277-048
 Account No. 19801985
 Report Date: 10/08/08

RON CAIN
 INDUSTRIAL HYGIENE & TRAINING, LLC

14950 WELLWOOD RD #300
 SILVER SPRING, MD 20905

**** FINAL REPORT ****

Date Received: 10/03/08
 Sample Type: 4 - Air Sample(s)
 Project: INDIAN CREEK UPPER PO Number:

Analytical Results

Lab	Parameter	Volume	Amount	LOQ	Concentration	Analysis
-001 1	(ROOM 237)	Samp Date:	10/02/08	Silica Gel Tube	Trtd with Sulfuric Acid	
-	NH3 Front		< 2.5 ug	2.5 ug		
10/08/08						
-	NH3 Rear		ND	2.5 ug		
10/08/08						
-	NH3 Total	19.4 L	< 2.5 ug	2.5 ug	< 0.185 ppm	
10/08/08						
-002 1	(ROOM 227)	Samp Date:	10/02/08	Silica Gel Tube	Trtd with Sulfuric Acid	
-	NH3 Front		< 2.5 ug	2.5 ug		
10/08/08						
-	NH3 Rear		ND	2.5 ug		
10/08/08						
-	NH3 Total	19.8 L	< 2.5 ug	2.5 ug	< 0.181 ppm	
10/08/08						
-003 3	(ROOM 218)	Samp Date:	10/02/08	Silica Gel Tube	Trtd with Sulfuric Acid	
-	NH3 Front		< 2.5 ug	2.5 ug		
10/08/08						
-	NH3 Rear		ND	2.5 ug		
10/08/08						
-	NH3 Total	18.5 L	< 2.5 ug	2.5 ug	< 0.194 ppm	
10/08/08						
-004 4	BLANK	Samp Date:	10/02/08	Silica Gel Tube	Trtd with Sulfuric Acid	
-	NH3 Front		< 2.5 ug	2.5 ug		

10/08/08
 - NH3 Rear ND 2.5 ug
 10/08/08 - NH3 Total 0 L < 2.5 ug 2.5 ug
 -- 10/08/08

Abbreviations: ug = micrograms, mg = milligrams, mg/M3 = milligrams per cubic meter of air, g = grams, ug/M3 = micrograms per cubic meter of air, L = liters, all Volumes given in liters, ppm = parts per million, ppb = parts per billion, Areas given in square feet; ND = Not Detected; ug/wp = ug/wipe; NVG = No Volume Given. NAG = No Area Given, LOQ = Limit of Quantitation.

Summary of Analytical Methods

Compound Name	Analytical Method	Abbreviation
Ammonia Total	NIOSH 6016	NH3 Total

Notes

Results provided in this report relate only to the items tested.

Attached are the results we obtained on the analysis of your samples. Any Chains-of-Custody associated with this sample group are also enclosed. Air concentrations are calculated as a convenience to the client and the overall accuracy of this result depends on both the accuracy of the air volume and the amount found by analysis. Theoretical Air Volumes for passive monitors are calculated using the sampling time submitted and the manufacturer's listed sampling rate for each compound.

For blanks and non-detects the results indicated with a '<' value represents the reporting limit for that analysis. Unless otherwise noted results are not corrected for blank values.

Unless the signature of the appropriate manager(s) appears on the final page of this report, this report should be considered PRELIMINARY and is subject to change.

We appreciate your confidence in allowing Analytics to be your testing laboratory. Any questions regarding this report can be addressed by calling our client services department (800-888-8061).