INDUSTRIAL HYGIENE STUDY

CONDUCTED ON SEPTEMBER 6 AND 15, 2017

FOR

WEBER LEISURE CENTER

SKOKIE, ILLINOIS

PROJECT NUMBER: 17-36178

EXECUTIVE SUMMARY

An industrial hygiene study was conducted on September 6 and 15, 2017 at Weber Leisure Center located in Skokie, Illinois. The Weber Leisure Center is a state-of-the-art, full service recreation center. The study was conducted as a proactive baseline industrial hygiene exposure assessment during treatment of the gym floor. Samples were collected for select contaminants for the Skokie facility.

The employee's exposure concentrations were evaluated with respect to the Occupational Safety and Health Administration's permissible exposure limits and action limits (OSHA PEL and AL) and the American Conference of Industrial Hygienists threshold limit values (ACGIH TLV). PEL are legal limits and TLV's are recommended exposure guidelines. TLV's for most air contaminants are more current than PEL's as they are reviewed and updated annually.

Sample results for the floor treatment operation were above the ACGIH recommended limits for total hydrocarbons in the gym. Other areas surveyed were below recommended and regulatory limits. Sample results were under the current OSHA PEL.

Based on the sample results and conditions observed at the time of the study the following summary of recommendations is offered:

1. Recommend employees entering or working in the gym during and following the floor treatment wear respirators with a minimum assigned protection factor (APF) of 10.

2. Additional ventilation in the areas immediately outside of the gym is recommended. This could be accomplished with some mobile fans in the area or leaving an external door in this vicinity open.

3. In accordance with OSHA standard 1910.1020 other testing results included in this report must be provided to employees within 15 days if requested. Aires recommends sharing all personnel sampling data with employees who participated in the process and with those that may be represented by the monitoring results.

Additional details regarding the recommendations outlined above are offered in this report. The data reported represents conditions unique to the sampling dates and conditions of the study. Any significant changes in work practices, procedures, or controls should be evaluated by an industrial hygiene professional.

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I. INTRODUCTION

An industrial hygiene study was conducted on September 6 and 15, 2017 at Weber Leisure Center located in Skokie, Illinois. The Weber Leisure Center is a state-of-the-art, full service recreation center. The study was conducted as a proactive baseline industrial hygiene exposure assessment during treatment of the gym floor. Samples were collected for select contaminants for the Skokie facility. Samples were collected from the following operations:

- Outside Gymnasium Doors (1st Floor)
- Gymnasium Track (2nd Floor).

Mr. Timothy M. St. Pierre, MPH, CIH, CSP, of Aires Consulting, a division of Gallagher Bassett Services, Inc. conducted the study. Ms. Emily Guynn, Weber Leisure Center Facility Manager supplied essential information and assistance during the study.

II. SAMPLING METHODS AND EXPOSURE GUIDELINES

SAMPLING MATERIALS AND METHODS

Area samples were collected using portable sampling pumps and collection media. Pump flow rate was established before, during and after the evaluation using a Dwyer rotameter that was calibrated with a Gilian Gilibrator electronic flow meter. An analytical blank (control) sample was submitted for each analyte unless otherwise noted.

The specific methodology for air sampling collection and analysis are outlined in Table 1.

Table 1. Air sampling methodology

Contaminant	Collection Media	Analytical Method
Xylene and Total Remaining Hydrocarbons	SKC 226-01 Charcoal Tube	Modified NIOSH 1500 / 1501

Samples requiring laboratory analysis were analyzed by Galson Laboratories of East Syracuse, NY. The laboratory is accredited under the American Industrial Hygiene Association (AIHA). Practices and procedures used by the laboratory conform to the recommended methods developed by the National Institute for Occupational Safety and Health (NIOSH) and OSHA.

EXPOSURE GUIDELINES

The employees' exposure concentrations were evaluated with respect to the Occupational Safety and Health Administration's permissible exposure limits and action levels (OSHA PEL and AL) and the American Conference of Industrial Hygienists threshold limit values (ACGIH TLV). The PELs and TLVs are intended as airborne concentrations of chemicals under which it is believed that a worker can be repeatedly exposed eight hours a day for a working lifetime without adverse health effects.

TLVs are revised annually to incorporate the latest scientific data. TLVs are used by professionals as guidelines and do not represent a strict separation between safe and hazardous environmental conditions. The guidelines are based upon the best available information from industrial experience, experimental human and animal studies and, when possible, a combination of the three.

OSHA recognizes that many of its permissible exposure limits (PELs) are outdated and inadequate for ensuring protection of worker health. OSHA adopted the majority of its PELs more than 40 years ago and since 1970, only 16 complete 6(b) standards with PELs and 13 standards for carcinogens (without PELs) have been promulgated. Recently, OSHA has acknowledged that new scientific data, industrial experience and developments in technology indicate that in many instances the mandatory PELs are not sufficiently protective of workers' health. OSHA recommends that employers consider using available alternative occupational exposure limits such as ACGIH TLVs, State PELs, The National Institute of Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs), and other applicable limits.

REMAINING TOTAL HYDROCARBONS

The "Remaining volatile organic compound" or "Total Hydrocarbons" measurement represents vapors present at the time of the study that were not measured individually. These vapors were either unable to be measured individually due to the lack of a validated sampling method or were identified as not requiring individual assessment through a qualitative risk assessment. These results were compared to the PEL and TLV for a Stoddard solvent and are considered reasonable standards for comparison.

Stoddard solvent is a refined petroleum solvent having a flash point in the range of 102 to 110 deg. F, a boiling point in the range of 154 to 202 deg. C, and containing 65 percent or more C10 and higher-molecular-weight hydrocarbons. The following potential contaminants during the study were identified as meeting this definition:

- Ethyl Benzene.

III. PROCESS MONITORED, RESULTS AND RECOMMENDATIONS

Industrial hygiene monitoring was performed during floor treatment activities at the Weber Leisure Center. Employee exposures were assessed for select contaminants for the following processes. A summary of the sampling results taken by handheld Multirae photo ionization detector (PID) by date is outlined below. Detailed sampling results can be found in Appendix I.

Table 1. Handheld Hydrocarbon measurements

Location	September 6 Parts per million (ppm)	September 15 (ppm)
Gym Track Level	460-470	0.5
Gym HVAC Room	315-375	0.4-0.5
Upper Level Outside Gym	75-100	0.4-0.5
Down Hallway Outside Upper Track	45-65	0.0-0.1
Stairwell By Gym	60-70	0.0-0.8
1st Floor By Vending	60-70	0.1-0.5
1st Floor Outside Server Room	15-25	0.6-0.7
1st Floor Outside Men's Restroom	9-15	0.7-1.1
1st Floor at Fitness Entrance	0.6-2	1.2-4.5 (some painting being done)
Center of Fitness Center	34-36	0.1
Bike Room	140-160 (recent installations)	0.0-0.1
Back Room in Fitness	49-51	0.4-0.5
Aerobics Studio	11-15	0.0-0.1
2nd Floor Office Lobby	11-12	0.0-0.1
Administrative Area	1-4	0.0-0.2
Administrative Staircase	0.2-0.4	0.0-0.2
Main Lobby	0.1-0.3	0.1-0.3
Kids First Room	30-33	No Access

DISCUSSION/RECOMMENDATIONS: Employee use and entering the gym area after floor treatment should be restricted. In the event that a staff member is required to enter the gym or be in the gym during floor treatment, a respirator equipped with a charcoal filter for volatile organic carbons with a minimum assigned protection factor (APF) of 10 should be used.

Additional ventilation in the areas immediately outside of the gym is recommended. This could be accomplished with some mobile fans in the area or leaving an external door in this vicinity open.

Odors and airborne hydrocarbon concentrations the following week of the treatment had dropped considerably on the second sampling date.

IV. SUMMARY OF RECOMMENDATIONS

Based on the sample results and conditions observed at the time of the study the following summary of recommendations is offered:

1. Recommend employees entering or working in the gym during and following the floor treatment wear respirators with a minimum assigned protection factor (APF) of 10.

2. Additional ventilation in the areas immediately outside of the gym is recommended. This could be accomplished with some mobile fans in the area or leaving an external door in this vicinity open.

In accordance with OSHA standard 1910.1020 other testing results included in this report must be provided to employees within 15 days if requested.

It is recommended that all sampling data be shared with employees who participated in the process and with those that may be represented by the monitoring results.

V. PROFESSIONAL CERTIFICATION

Aires Consulting conducted this study in the interest of Weber Leisure Center to assist in preventing employee illness and in meeting legal obligations. In this respect, we hope the results of this study are useful. This study was not intended to include every health hazard or exposure that may be present in the facility; only those items specifically addressed in the report were evaluated. Results are based on conditions observed during our study. Substantial changes in production levels, methods of operation, or materials used can alter the outcome of an environmental study. If you have any questions concerning this study please do not hesitate to contact us.

Aires retains electronic files of all reports, correspondence, and data. We do not retain hand written field notes indefinitely.

Respectfully submitted,

Timothy M. St. Pierre, MPH, CIH, CSP
Director Industrial Hygiene Services

Appendix I

Client: Client Weber Leisure Center-Skokie, IL (17-36178.S&H) Sampling Date: 9.6.17 Consultant: Timothy M. St. Pierre, MPH, CIH, CSP					Results	
Sample Description Location/Person	**Sample ID**	**Area / Personal**	**Duration (Min)**	**Sample Volume (Liters)**	**Total Remaining Hydrocarbons**	**Xylene**
1st Floor directly outside gymnasium doors	A	A	96	19.2	29	4.2
Gymnasium Track Level	B	A	98	19.6	290	33
ppm = parts per million < = Not Detected; less than the analytical limit of detection NE = Not Evaluated			Conc. Units		ppm	ppm
			ACGIH TLV		100	100
			ACGIH STEL		NE	150
			OSHA PEL		500	100

SGS GALSON

Mr. Tim St. Pierre
Aires Consulting Group, Inc.
1550 Hubbard Avenue
Batavia, IL 60510

September 13, 2017

DOH ELAP #11626 Account# 13489 Login# L417875
AIHA-LAP #100324

Dear Mr. St. Pierre:

Enclosed are the analytical results for the samples received by our laboratory on September 08, 2017. All test results meet the quality control requirements of AIHA-LAP and NELAC unless otherwise stated in this report. All samples on the chain of custody were received in good condition unless otherwise noted.

Results in this report are based on the sampling data provided by the client and refer only to the samples as they were received at the laboratory. When possible, non-IOM samples will be retained for 14 days following the date of this report (unless an extension is specifically requested). IOM samples are retained for 7 days.

Current Scopes of Accreditation can be viewed at www.galsonlabs.com in the accreditations section under the "about Galson" tab.

Please contact Patty Gregorich at (888) 432-5227, if you would like any additional information regarding this report. Thank you for using SGS Galson Laboratories.

Sincerely,

SGS Galson Laboratories

Lisa Swab
Laboratory Director

Enclosure(s)

Galson Laboratories, Inc. is now a part of SGS, the world's leading inspection, verification, testing, and certification company. As part of our transition to SGS, you will begin to see some formatting changes with reports that will improve the presentation of data and allow for the transition to the new logo.

LABORATORY ANALYSIS REPORT

SGS GALSON
6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client : Aires Consulting Group, Inc.
Site : Weber
Project No. : 17-36178
Date Sampled : 06-SEP-17
Date Received : 08-SEP-17

Account No.: 13489
Login No. : L417875

Date Analyzed : 12-SEP-17
Report ID : 1017941

Client ID : TS090617A 14-1096526 **Lab ID : L417875-1** **Air Volume : 19.2 L**
Date Sampled : 09/06/17 **Date Analyzed : 09/12/17**

Parameter	LOQ ug	Front ug	Back ug	Total ug	Conc mg/m3	ppm
Other Total Hydrocarbons	40.	2000	<40	2000	100	29
Xylene	15	340	<15	350	18	4.2

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: 226-01 Submitted by: KAG Approved by: NKP
Date : 13-SEP-17 NYS DOH # : 11626 Supervisor: KLD QC by: NDC

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
> -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million LOQ-Limit of Quantitation

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LABORATORY ANALYSIS REPORT

6601 Kirkville Road
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FAX: (315) 437-0571
www.galsonlabs.com

Client : Aires Consulting Group, Inc.
Site : Weber
Project No. : 17-36178
Date Sampled : 06-SEP-17
Date Received : 08-SEP-17

Account No.: 13489
Login No. : L417875

Date Analyzed : 12-SEP-17
Report ID : 1017941

Client ID : TS090617B 14-1096527 **Lab ID : L417875-2** **Air Volume : 19.6 L**
Date Sampled : 09/06/17 **Date Analyzed : 09/12/17**

Parameter	LOQ ug	Front ug	Back ug	Total ug	Conc mg/m3	ppm
Other Total Hydrocarbons	40.	20000	58	20000	1000	290
Xylene	15	2800	<15	2800	140	33

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: 226-01
Date : 13-SEP-17

Submitted by: KAG
NYS DOH # : 11626

Approved by: NKP
Supervisor: KLD QC by: NDC

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
> -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million LOQ-Limit of Quantitation

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LABORATORY ANALYSIS REPORT

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Client : Aires Consulting Group, Inc.
Site : Weber
Project No. : 17-36178
Date Sampled : 06-SEP-17
Date Received : 08-SEP-17

Account No.: 13489
Login No. : L417875

Date Analyzed : 12-SEP-17
Report ID : 1017941

Client ID : TS090617C 14-1096528 **Lab ID : L417875-3** **Air Volume : NA**
Date Sampled : 09/06/17 **Date Analyzed : 09/12/17**

Parameter	LOQ ug	Front ug	Back ug	Total ug	Conc mg/m3	ppm
Other Total Hydrocarbons	40.	<40	<40	<40	NA	NA
Xylene	15	<15	<15	<15	NA	NA

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Collection Media: 226-01 Submitted by: KAG Approved by: NKP
Date : 13-SEP-17 NYS DOH # : 11626 Supervisor: KLD QC by: NDC

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms NA -Not Applicable ND -Not Detected
> -Greater Than ug -Micrograms l -Liters NS -Not Specified ppm -Parts per Million LOQ-Limit of Quantitation

SGS GALSON

LABORATORY FOOTNOTE REPORT

6601 Kirkville Road
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www.galsonlabs.com

Client Name : Aires Consulting Group, Inc.
Site : Weber
Project No. : 17-36178

Date Sampled : 06-SEP-17 Account No.: 13489
Date Received: 08-SEP-17 Login No. : L417875
Date Analyzed: 12-SEP-17

Unless otherwise noted below, all quality control results associated with the samples were within established control limits or did not impact reported results.

Note: The findings recorded within this report were drawn from analysis of the sample(s) provided to the laboratory by the Client (or a third party acting at the Client's direction). The laboratory does not have control over the sampling process. The findings herein constitute no warranty of the samples' representativeness of any sampled environment and strictly relate to the samples as they were presented to the laboratory.

Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceeding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.

The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).

Unless otherwise noted below, reported results have not been blank corrected for any field blank or method blank.

L417875 (Report ID: 1017941):
Other Total Hydrocarbons - Total ug corrected for a desorption efficiency of 100%.
Xylene - Total ug corrected for a desorption efficiency of 99%.
SOPs: GC-SOP-16(17), GC-SOP-8(20), GC-SOP-12(13)
The total VOC analysis should be used for screening purposes only. All values are estimated based on the response of n-Hexane. Please contact client services in regards to reporting the sample(s) for the tentatively identified compounds. For the sample(s) that are non-detect no tentative identifications will be provided.

L417875-1-2 (Report ID: 1017941):
Tentative identification includes: Ethyl Benzene and other unidentified Volatile Compounds.

<	-Less Than	mg	-Milligrams	m3	-Cubic Meters	kg	-Kilograms	ppm	-Parts per Million
>	-Greater Than	ug	-Micrograms	l	-Liters	NS	-Not Specified	ND	-Not Detected	NA	-Not Applicable

LABORATORY FOOTNOTE REPORT

GALSON

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.galsonlabs.com

Client Name : Aires Consulting Group, Inc.
Site : Weber
Project No. : 17-36178

Date Sampled : 06-SEP-17 Account No.: 13489
Date Received: 08-SEP-17 Login No. : L417875
Date Analyzed: 12-SEP-17

L417875 (Report ID: 1017941):

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2). The estimated accuracy applies to the media, technology, and SOP referenced in this report and does not account for the uncertainty associated with the sampling process. The accuracy is based solely on spike recovery data from internal quality control samples. Where N/A appears below, insufficient data is available to provide statistical accuracy and mean recovery values for the associated analyte.

Parameter	Accuracy	Mean Recovery
Other Total Hydrocarbons	N/A	N/A
Xylene	+/-9%	95.8%

Parameter	Method	PEL
Other Total Hydrocarbons	mod. NIOSH 1500; GC/FID	NA
Xylene	mod. NIOSH 1501; GC/FID	100 ppm (TWA)

< -Less Than mg -Milligrams m3 -Cubic Meters kg -Kilograms ppm -Parts per Million
> -Greater Than ug -Micrograms l -Liters NS -Not Specified ND -Not Detected NA -Not Applicable

L417875

Appendix II

GALSON LABORATORIES
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Tel: (315) 432-5227
888-432-LABS (5227)
Fax: (315) 437-0571
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☐ New Client?

Client Account No.*: 13489

Report To*: Timothy St. Pierre, MPH, CIH, CSP
1550 Hubbard Ave.
Batavia, IL 60510

Phone No.*: (630) 693-6073
Cell No.: (248) 882-0997
Email Results to: Tim St. Pierre & Batavia Lab
Email address: Timothy_St.Pierre@gbtpa.com; Batavia.GBLab2@gbtpa.com

Invoice To*: Chris Soloma
1550 Hubbard Ave.
Batavia, IL 60510

Phone No.: (630) 593-6080
Email: chris_soloma@gbtpa.com
P.O. No.:
Credit Card: ☐ Card on File ☐ Call for Credit Card Info.

☑ Samples submitted using the FreePumpLoan™ Program ☑ Samples submitted using the FreeSamplingBadges™ Program

Need Results By:	(surcharge)
☑ Standard	0%
☐ 4 Business Days	35%
☐ 3 Business Days	50%
☐ 2 Business Days	75%
☐ Next Day by 6pm	100%
☐ Next Day by Noon	150%
☐ Same Day	200%

Site Name: Weber Project: 17-36178 Sampled by: Tim St. Pierre

Comments:

List description of industry or Process/interferences present in sampling area:

State samples were collected in (e.g., NY)

Please indicate which OEL this data will be used for:
☐ OSHA PEL ☐ ACGIH TLV ☐ Cal OSHA
☐ MSHA ☐ Other (specify):

Sample Identification* (Maximum of 20 Characters)	Date Sampled	Collection Medium	Sample Volume Sample Time Sample Area*	Sample Units*: L, ml,min,in2,cm2,ft2	Analysis Requested*	Method Reference^	Hexavalent Chromium Process (e.g., welding plating, painting, etc.)*
TS090617A 14-1096526	09/06/17	226-01	19.2	L	Xylene, Total Remaining Hydrocarbons		
TS090617B 14-1096527	09/06/17	226-01	19.6	L	Xylene, Total Remaining Hydrocarbons		
TS090617C 14-1096528	09/06/17	226-01	0	L	Xylene, Total Remaining Hydrocarbons		

^Galson Laboratories will subsititute our routine/preferred method if it does not match the method listed on the COC unless this box is checked: ☐ Use method(s) listed on COC

For metals analysis: if requesting an analyte with the option of a lower LOQ, please indicate if the lower LOQ is required (only available for certain analytes - see SAG):

For crystalline silica: form(s) of silica needed must be indicated (Quartz, Cristobalite, and/or Tridymite)*:

Chain of Custody	Print Name/Signature	Date	Time		Print Name/Signature	Date	Time
Relinquished by:	Timothy M. St. Pierre	09/06/17		Received by:	GretchenBGS	9/8/17	1020
Relinquished by:				Received by:			

Samples received after 3pm will be considered as next day's business
* Required fields, failure to complete these fields may result in a delay in your samples being processed.

Page ____ of ____