

# AIHA-RMS The Exposure

July 2011

Summer Edition



Haystack Rock – Goonies anyone?

## Inside

Stay Weird Portland

CSU Grad Students go 3/3

2

M2R

3

What's Romania Mania?

4

Fall Tech Conference

5

## Stay Weird Portland

Boulder's not the only city that prides itself on being rather, ahem, eclectic. Having the opportunity to walk the city for a good, partially rain-soaked week, I can attest that Portland, OR does a fine job living up to their own three word motto. Whether it's eating donuts with crunched cookies drizzled in peanut butter or eating from the sea of food carts or strolling through

the farmer's market that encompasses three city blocks or getting lost in Powell's Books - Portland you were great.



Yes, that's a Voodoo donut

I have to be honest here; I didn't get the 'weird' vibe. It was kinda like those 3D pictures that were all the rage about 15 years ago - you want to see the spaceship flying between comets, but no matter how hard you try to 'see through the

picture' you just can't get it. All I got was a great city that put on a great conference. I hope you were able to experience the same.

Who is this Edition's M2R? I was 4 years old when he started in the field – sorry 'bout that just had to do it.



# CSU Students Go 3/3

Student Poster Session

All 3 students fly back to  
CO with a blue ribbon

Daniel Autenrieth - Best Noise Poster: page 4

Sara Funk - Kenneth Dillon Memorial Award: page 5

Miriam Koesterich - Safety Committee Best Poster: page 6

## Can you count to Seventeen?

Joining Forces for 17 Years





# Linn Havelick

## Member to Remember

Who influenced you to be an IH? *The Safety Manager at my first technical job. I thought he had a cool job and that I could do a lot of things with it.*

How long have you been in the field? *Since about 1983*

What do you remember about being young in the field? *People wanted to give me responsibilities that I didn't know I was ready for.*

What makes a good junior? *The ability to see what needs to be done and to do it - without having to be led by the hand.*

What makes a good manager? *The ability to let people own their job and exercise their capabilities.*

What is your current employment position/title? *Until a few weeks ago, Director, EHS at the Colorado School of Mines. Now I am Director, Environmental Projects at CSM.*

What do you like about this field? *It forces you to keep learning.*

What would you like seen changed? *More safe substitutes for carcinogenic materials.*

Are you a dog or cat person? *Yes, both. My true love is keeping goldfish and wild things in outdoor ponds.*

If you were going on a 1,500 mile road trip with 3 other people - past/present/current - who would you bring? *I have gone to Romania with Cynthia Ellwood, Cindy Becnel, and Josh Schaeffer. I would take a road trip with any of them once I made room for my wife.*

What was your first car and how long did you have it? *It was an Austin-Healy Sprite - tiny, cool, and slightly above rolling junk status. I kept it for about two years.*

What are your top 3 places to eat? *#1 - Home - I married a fantastic cook so when I am at home I get to do the dishes. #2. Little Anita's - they have the best vegetarian green chili I have ever tried. #3. Tokyo Joes - I just cannot seem to stay away from their lunches.*

If the entire world is in debt, who has all the money? *I love Economics. If there was no debt everyone would probably live at a basic, subsistence level. Too much debt results in good times for a while, then things go bad. Money is just a kind of IOU so a more interesting question is who has all the things?*

In an airplane or movie theater, which armrest is yours? *In a movie theater, find the popcorn; on an airplane it is anyone's guess.*

What can you do today that you couldn't a year ago? *Say "Bună dimineața" and know what it means.*

Did you play any sports/band/choir? *In school it was work, work, work. Now I love to ballroom dance.*

How long have you served AIHA-RMS? *I volunteered to be the Legislative Chair for the RMS in about 1988.*

What's your current position? *Web Manager*  
What positions have you held in the past? *Legislative Chair, President of the Colorado Industrial Hygiene Council, President, and Treasurer.*

How many terms have you held? *Wow. Lots. I need a kindergartener to count that high.*

Why have you given so much time to the Section? *I think that the profession of Industrial Hygiene attracts a certain type of wonderful person to its practice. I just enjoy spending time with the people.*

If you were to retire tomorrow what would you do in your first week? *Expand my fish pond.*

Here's to your fish pond - thanks for your commitment to our field and RMS.

# Occupational Exposures to Noise from Personal Media Players at a Manufacturing Facility

Daniel Autenrieth,  
W. Brazile



**Objective:** This study examined the contribution of personal media player (PMP) use in the workplace to overall employee noise exposures at a manufacturing facility.

**Methods:** A total of 24 workers, 12 high-background-noise exposed workers (HBNEW) and 12 low-background-noise exposed workers (LBNEW) were identified using PMPs at work. A questionnaire was administered to HBNEW and LBNEW to assess PMP listening duration. The chosen listening level of each worker was measured using an ear simulator, while the background noise at each workstation was measured using a sound level meter. Chosen listening levels, background noise levels, and self-reported listening durations were used to estimate occupational noise exposures.

**Results:** The mean background equivalent sound pressure levels were 81 and 59 dBA for HBNEW and LBNEW, respectively. The mean free-field equivalent listening level was 85 dBA for HBNEW as compared to 75 dBA for LBNEW. The average self-reported workplace PMP listening time was 3.6 hours per day for HBNEW and LBNEW. The estimated mean noise exposures were below occupational exposure limits, specifically 84 dBA eight-hour time weighted average (TWA) for HBNEW and 72 dBA TWA for LBNEW. However, 6 of 12 (50%) HBNEW had estimated exposures greater than 85 dBA TWA, while only 3 of 12 (25%) HBNEW would have been overexposed to noise from background noise alone.

**Conclusions:** Although there was no mean overexposure, there was a 100 percent increase in the number of HBNEW overexposed to noise when PMP use was considered as compared to background noise alone. It is recommended that facility management prohibit workplace PMP use among HBNEW or provide output-limiting technology to reduce worker risk of noise-induced hearing loss (NIHL). Further research is needed to estimate the prevalence of occupational PMP use and to determine an acceptable background noise level for permitting workplace PMP use without increased risk of NIHL.

Dan finished his MS in May of this year and is staying on for a PhD.

1 Advisors:  
Dr. William Brazile  
Del Sandfort  
Tiffany Lipsey

2 Dan welcomes your questions or comments regarding his research. He'd also like to extend greetings to fellow Local Section members. Email Dan at:  
[danaut@rams.colostate.edu](mailto:danaut@rams.colostate.edu)

**How much is a student admission for the Fall Tech Conf?**

-Read the last page for answers-

# Evaluation of Seasonal Ventilation Changes & Their Effect on Ambient Dust, Endotoxin, & Bioaerosol Concentrations in a Dairy Parlor

Sara Funk, S. Reynolds, J. Volckens, S. Dowde, and M. Nonnenmann



**Objective:** This pilot study measured the impact of seasonal ventilation changes on concentrations of organic dust, endotoxin and bacteria in one modern dairy milking parlor. Pyrosequencing, a new non-target specific molecular methodology was used to characterize airborne bioaerosols.

**Methods:** Area samples for inhalable dust, respirable dust, endotoxin, and bacteria were collected in one dairy parlor during both summer and winter seasons. Five air sampling events were performed at approximately weekly intervals during each season. The summer season included an open facility with fresh air mechanical ventilation. The winter season consisted of a closed facility with no fresh air ventilation and forced heat. Aerosol size distributions, air velocity inside the parlor, humidity, temperature, and CO<sub>2</sub> were also sampled each trip. Two-way ANOVA was performed to test statistically significant differences between variables.

**Results:** No significant differences between mean concentrations of inhalable dust, respirable dust, or bacteria were seen by season. However, seasonal differences in endotoxin concentrations approached statistical significance ( $p=0.06$ ). CO<sub>2</sub> concentration doubled during the winter as compared to the summer ( $p<0.001$ ) due to reduced ventilation. The most common bacterial genera in both seasons were Clostridium (anaerobic), Oscillibacter and Staphylococcus - all Gram positive bacteria. Average concentrations of total bacteria in the facility during the summer and winter were 2839 and 7008 counts/m<sup>3</sup>, respectively.

**Conclusions:** This study was the first to apply Pyrosequencing to measure bioaerosols in a dairy environment. The diversity of bacteria and predominance of Gram-positive bacteria is consistent with studies in swine and poultry facilities. Concentrations of dust, endotoxin, and bacteria were low during both seasons in this milking parlor. These study results will inform the design of future comprehensive studies of aerosol exposure interventions in dairy operations. Understanding these aerosol exposures and potential interventions is important for reducing respiratory disease among workers in the dairy industry.

Sara graduated with her BS in EH from CSU and she completed her MS this May.

Following graduation, Sara was interested in gaining experience in as many industrial hygiene-related fields as possible.

I think she'll find her cup running over with IH at her new job with C & IH!

Congrats Sara and welcome to the AIHA-Rocky Mtn Section.

1 Advisors:  
Dr. Stephen Reynolds  
Dr. John Volckens  
Dr. Noa Roman-Muniz

2 If you would like to ask Sara a question about her research or to welcome her to the Local Section email her at:  
sara.c.funk@gmail.com

When is the deadline for FTC early admission?

# Review, Assessment & Prioritization for an Occupational Health & Safety Management System in a Veterinary Teaching Hospital Using the American National Standards Institute/American Industrial Hygiene Association Z10 Standard

Miriam Koesterich, W. Brazile, K. Blehm, D. Hendrickson

**Background:** There are many hazards that could cause employee harm in veterinary hospitals. An effective way to control hazards is the implementation of an Occupational Health and Safety Management System (OHSMS). However, there are no published reports of any veterinary hospital successfully implementing an OHSMS using the Occupational Health and Safety Management Systems Standard (ANSI/AIHA Standard Z10-2005). This research was focused on the development of the initial stage of an OHSMS at a veterinary teaching hospital (VTH), using the ANSI/AIHAZ10 Standard.

**Objectives:** The rationale for this study was to improve the safety performance at the VTH and provide a model for other veterinary hospitals.

**Methods:** Through a health and safety assessment and employee interviews at the VTH, the researcher identified hazards; conducted a comprehensive hazard analysis and risk assessment; identified applicable regulations, standards, and requirements; prioritized health and safety issues based on risk; and recommended protective strategies for the VTH to reduce risk.

**Results:** Per the risk assessment and prioritization strategy of the 20 VTH service areas, Large Animal Surgery was the number one priority followed by Livestock and Small Animal Surgery. Identified issues in these service areas were related to confined space, lack of lock-out tag-out procedures, chemical storage, anesthetic waste gas, and lasers. The area with the lowest priority rating was Administration.

**Conclusions:** All serious risks should be addressed first by both management and employees to assure employee involvement. Second, hospital-wide issues should be addressed. Except for the Maintenance Area risks, the other serious risks affected all or the majority of the hospital and included toxic and hazardous substances, violent patients, anesthetic waste gas, and zoonotic disease. Results and recommendations of this study can be used as a template by other veterinary hospitals.



Miriam completed her BS in IH & Environmental Toxicology at Clarkson University. She moved from NY to CO to complete her MS at CSU. She graduated this May and is currently working for ARCADIS. Miriam is a new member to RMS!

1 Advisors:  
Dr. William Brazile  
Dr. Kenneth Blehm  
Dr. Dean Henderickson

2 Feel free to contact Miriam with any questions regarding her research or to welcome her to the Local Section at:  
miriam.koesterich@arcadis-us.com

How much is early registration for FTC?

# A trip back in time

Back in May we had representation from the Local Section in Iasi, Romania! Below is an email that was sent while our two representatives - Linn Havelick and Josh Schaeffer were in country.

Hello fellow board members! I hope everyone is doing well.

As a reminder, our very own Linn Havelick and Josh Schaeffer are currently in Iasi, Romania participating in the 8<sup>th</sup> International Congress in Materials Science and Engineering. Linn and Josh began their trip to Iasi on Monday and will return next week. They are both participating in the Congress on May 26 and 27, and Linn will be presenting his manuscript entitled "Environmental and Safety Legacies of a Mining Industry Research Institute". I have attached Linn's manuscript to this email.

After the Congress, Linn and Josh will be providing an Industrial Hygiene Workshop (May 28-30) that focuses on health and safety practices for lead exposure. I have attached the syllabus for the workshop in this email. This workshop will include a ½ day roundtable discussion about how the AIHA-RMS can continue to support Industrial Hygiene efforts in Romania and a ½ day technical tour of a metallurgy facility.

Linn and Josh - Thank you for your dedication and hard work on this project. We all wish you a safe and productive trip and wish we could be there. We look forward to hearing about the trip at the next board meeting. Please let us know if you need anything during your time in Iasi. Please send our regards to Silvia, Radu and Constantin.

Thank you,  
Angie

*In the next edition of The Exposure: Linn and Josh share their personal experiences in Iasi*



Iasi Cultural Center

# Fall Technical Conference

It's the 17<sup>th</sup> Annual collaboration of your AIHA Local Section and the Colorado Chapter of the American Society of Safety Engineers!

Check "out of the office" in your Outlook for September 20<sup>th</sup> through 21<sup>st</sup>. Prepare yourself for professional growth in: Business Management Skills, Effective Safety & Health Communication, and Overcoming Complacency in your Workforce – to name a few. Not to be outdone – the technical side of the conference includes: Machine Guarding, Respiratory Protection, and CO Prevention – Fuel-fired Equipment Assessment – to name a few.

Member registration is \$200 if you beat the September 1<sup>st</sup> early-bird deadline. Students are encouraged to attend for just \$20!

Want more information? Check out: [www.aiha-rms.org](http://www.aiha-rms.org)

For information on how to register – visit the website.

For information on who to contact regarding Exhibitor Space – visit the website.

For information on who to contact regarding Sponsorship – visit the website.

OR just contact your local, friendly President-Elect, Cynthia Ellwood.

## Board Members

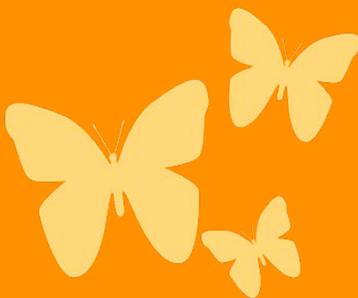
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