Unusual Safety and Environmental Projects in Las Vegas: What Happens Here You Will Now Hear

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Las Vegas Mayor Oscar Goodman says he is the happiest Mayor in America

Many times I feel like the happiest IH in America with all the variety, challenges, and excitement I experience doing OEHS consulting in Las Vegas
Celine Dion Projects

- **Project Summary:** Assessment of the Indoor Environmental Conditions Present at Three Locations Commonly Occupied by Celine Dion (Dressing Room, Stage, and Home)

- **Problem:** Steam is injected into ventilation systems to increase humidity in occupied space to an optimal level of 50% with a temperature in the mid to upper 70s. Has this increased microbial and other environmental pollutants?

- **Scope of Work:** HVAC assessments were conducted and aerosols, cultured fungi and bacteria, swabs, and tape lifts were collected
Celine Dion (cont.)

- **Methods**: Visual, Air-O-Cell for aerosol analysis, agar plates, cultured swabs and microscopically analyzed tape lifts

- **Findings**: Minor dirtiness in ventilation systems, no elevated aerosols, fungi or bacteria

- **Recommendations**: Continue to use RO filtered steam water, UV, multiple filters, allow system to dry out when Celine not present, and clean and maintain the HVAC system
Construction Project Seeking USGBC LEED Certification

• **Project Summary:** Assess safety of intended reuse of existing building materials to be demolished including glass, wood and rubber-like materials. LEED points awarded for reusing materials from structures on site before building new facilities.

• **Problem:** Hazards may exist when the old building constituents are reused.

• **Scope and Methods:** The main hazards would include heavy metals and VOCs when heated. The materials were heated, the headspace was sampled and analyzed by GC/MS for VOC and Semi-VOC constituents and the materials were analyzed for heavy metal content.
Findings: The results were compared to Region 9 EPA Preliminary Remediation Goals (PRGs) for soils expressed in ppm. The levels of analytes detected in the samples were low and well below the PRGs (where applicable).

Recommendations: Use as intended.
Police Drug Evidence Burn mid-90s

- **Project Summary:** Provide oversight services of drug evidence burn to assess safety, health and environmental issues.

- **Findings:** Tamping down boxes with unknown contents with tennis shoes, incinerator at military base not hot enough, almost disposed of mercury compound in incinerator

- **Recommendations:** Either don’t tamp down boxes or use a wood board or similar, use a different means of disposal next time because incinerator’s permit restrictions were being violated, establish a list of materials not to be burned and assess contents.
MGM EFX, Bally’s Jubilee, Sirens Show Hazard Assessments

- **Project Summaries**: Assess safety and exposure issues for stage hands, riggers, and actors relating to particles from effects, falls, thermal stress, oxygen deficiency, etc.

- **Scope**: Assess the pyrotechnics/fog effects associated emissions of nuisance particles (e.g., AlO2, TiO2, carbon, StCO3, KCl, glycols, mineral oils, fog (steam and CO2), etc.). Conduct a safety audit of the locations and activities. Go on stage. Report findings to David Cassidy.
Show Hazard Assessments (cont)

• **Findings:** Nuisance dust levels elevated on occasion, do not overheat poly-propylene fog liquid, oxygen lowered at stage level from CO2/Steam fog, maritime safety applied to Siren’s pirate ship.

• **Recommendations:** Use dust masks and limit pyrotechnics, assure O2 monitors are functioning, clear aisles, reassess fall protection.
Sigfried & Roy Tigers and MGM Lions Habitat Assessments

- **Project Summary:** The tigers were getting ill and the Lions were having epileptic seizures. The habitats were evaluated to determine if they may be contributing to the problems.

- **Problem:** The air, water, food, and surfaces in the habitats may have harmful contaminants present. Tigers habitat was outside with plants (poison) and wood products (treatment chemicals). Fly spray and odors from nearby construction were present. Air cooled by evaporative coolers. Lions’ water filtered with multiple technologies but they urinated in it. Air not circulated well, possible CO2 & CO buildup.
Tigers and Lions (cont)

• **Scope:** Test wood materials (poles and wood chip bedding) for metals, drinking water for standard items, paints for VOCs, bacteria and fungi in air and on ventilation surfaces, feces and vomit, airborne VOCs, fog/smoke effects in show, cleaning products, etc. Assess lion habitat for CO and CO2 with direct reading datalogging instruments.

• **Findings:** Arsenic and chromium in wood stakes, paint VOCs from nearby parking garage, evaporative coolers microbial contamination. Veterinarians found stomach virus for tigers and inbreeding genetic issues for lions.

• **Recommendations:** Better maintenance and remove hazardous materials identified.
Springs Preserve Straw Building Excess Moisture Concerns

• **Project Summary:** Buildings constructed with straw inside and stucco on the exterior. The first building’s stucco cracked so the next building had more water used. Second building was assessed for moisture, mold, and insects.

• **Problem:** Overly wet straw can spontaneously combust and would support mold growth; not good for a “Green” building.

• **Scope:** Special moisture probes used and 44 bulk samples for mold content collected from dry building, wet building, and pre-installation straw bales. Collect insect samples for entomologist assessment.
Straw Building (cont)

- **Findings**: Moisture above guideline even after multi-day drying, elevated mold in wet building (ref graphs), book lice, darkling beetles, and ants

- **Recommendations**: Remove and replace overly wetted straw.
Aspergillus species - CFU/gm
Other Projects

- Hotel Confined Space Assessments
- Devil House
- Cocktail Waitress, Bartenders, Security Noise Assessments
- Bugsy Building Asbestos Abatement
- How Clean is Your House? Drag Queen
- Batmobile
Devil house
THANK YOU
VERY MUCH