

**Sheriff's Office Bunnell FL Investigation**  
**ESi project #: 63367F**

**MEMO TO FILE**

**Zdenek Hejzlar 5/30/18**

*Initial notes from information review of Flagler County Sheriff's Office Investigation - Preliminary review of the information provided and potential hypothesis development*

Information from Sheriff Rick Staly letter, dated 05/29/18:

According to the letter, the employees moved in September 2015.

Symptoms identified in the letter - rashes, hives, itching, headaches, fatigue, breathing impairment and other symptoms of illnesses (not specified).

This information is helpful as a building block's Exposure Pathway Analysis.

The pathways considered are - ingestion, dermal contact and inhalation. The symptoms may be related to one or more exposure pathways.

In order to develop the hypothesis of exposure, we have to identify the suspected contaminants, how they move through the environment, if and how they can cause the reported symptoms and what testing we can do to test the exposure pathway hypothesis.

The letter mentioned the H2H investigation and remediation. My preliminary review of the investigation and test results demonstrates that this investigation was not limited to mold but included infrared investigation of possible moisture sources, HVAC inspections, carbon dioxide and moisture testing and evaluations, respirable particle size evaluation, volatile organic compounds (VOC) investigation, formaldehyde screening, common allergens testing including dander, dog and cat allergens, and bacterial contamination screening.

Under all the currently acceptable remediation guidelines, the results did not indicate a mold problem sufficient to warrant remediation and yet, in an apparent abundance of caution to eliminated any doubt, the County conducted the remediation.

The letter mentions health department performing Health Department Assessment that suggested – possible: not probable – connection to workplace environment. It appears that this preliminary assessment was very basic using anecdotal information, did not involve any testing, hypothesis development and subsequent testing of such hypothesis. Any further investigative conclusions should really be able to stand up to scientific scrutiny. When a professional provides a conclusion that something is possible it can fall anywhere above 0.00000001 probability up to 50% probability. It is similar to Civil lawsuits where the jury decides on preponderance of evidence. They cannot be dealing

with possibilities, they have to deal with what the evidence tells them is probable. Similarly, when scientists say that their opinion is based on a reasonable degree of scientific certainty it raises the bar to over 90 percent confidence interval. It is similar to criminal law term – beyond a reasonable doubt. The data in support of the health department conclusion can shed a light where on how confident they are in their conclusions. ESI has not been provided with that information. In order to be able to say that we conclude something to a reasonable degree of scientific probability we essentially have to have more than 50 % confidence in our conclusion. At this point a more in-depth investigation that would actually involve input, evaluation and testing from a trained physician may be appropriate.

The letter also talks about the Sheriff's research on repurposing old hospitals. I have not yet reviewed the specific case studies that he mentioned but it should be noted that the County followed the accepted scientific EPA and ASTM protocols when acquiring the property.

This hospital was built in 1979. It is not an old building on an industrial site that had become or was once a Superfund site. A Phase I Environmental Site Assessment (ESA) was conducted by Universal Engineering Sciences (UES) that researched the history of the property and surrounding area back to 1943. It revealed no unresolved environmental issue and no evidence of historical contamination of the property with the exception of a 1989 diesel release. The release was associated with the removal of an underground 6,000-gallon diesel tank. Clean-up was conducted and the second 6,000-gallon tank was removed in 1999. This release resulted in soil and groundwater testing on the site and subsequent soil removal and soil and groundwater remediation clean-up that involved installation of 23 monitoring and recovery wells. After the remediation was finished, the DEP issued a Site Rehabilitation Completion Order in March of 2004. So, from 1989 through 2004, this site was undergoing periodic testing and monitoring for contaminants with the FL DEP oversight until it was determined that further testing was not necessary. This represented a significant soil and groundwater investigation at the site.

In addition to the Phase I ESA report, UES also conducted asbestos testing, lead base paint testing, and mold assessment of the old building. This resulted in the building being gutted with removal of all the old drywall which essentially removed the interior finish that could have potentially been contaminated and any mold impacted materials.

In July of 2013, the County also considered the potential impact of pathogens left over from the hospital operations. Given the total removal of drywall and interior finish, the pathogen survival rate appeared impossible and was confirmed in the opinion provided by Dr. Mark Wallace, M.D.

The letter also mentions a suggestion that the property should have been "hot baked" to get rid of VOC emissions from newly installed building materials and finishes. It should be noted that this practice is not widely accepted or recommended as it can result in more damage and other issues. Certain forms of the practice, such as increased ventilation rates and increasing the building temperature to accelerate the off-gassing of materials, can be used to reduce VOCs but should never be performed without first testing for VOC

to see if such procedures would work or would be warranted. This is more applicable to new buildings where every portion of the building, including the slab, is new and continues to off-gas for an extended period of time. The old (existing) concrete slab and concrete block construction from 1979 would not have measurable off-gassing. All that being said, VOCs, including formaldehyde, were tested in the H2H assessment in the two most suspect areas and came back very low, not indicating a problem. H2H also tested for mold VOC which are produced by living mold and they were almost non-existent, further supporting the indication that the building did not have a mold problem. VOC typically diminish with time (most within the first 6 months).

Sheriff's research:

Dioxins - represent environmental pollution - can cause the symptoms described but it would be through ingestion of food from a contaminated environment such as fish and crops - from industrial process (dumped waste), volcanic eruptions and forest fires (includes PCBs). Ingestion does not appear to be a valid pathway in this investigation. Dioxins just do not float in the air in a typical non-industrial environment. They are not highly volatile.

Others - lithium, thallium and alpha particles - radiation - heavy metals radioactive - they do not cause the symptoms - no evidence that they were present and easy enough for health department to test for them including radon.

Arsenic - Ingestion is an ingestion pathway issue - ie playgrounds - treated wood. Also, arsenic is naturally occurring in Florida. Well water. Water was tested and did not come back positive for arsenic.

The letter mentions that there was no soil testing - actually there was because of the historical spill of petroleum products which was cleaned up. If the soil was polluted, it would show up as VOC. They came back negative.

Hypothesis

Inhalation - VOCs, CO<sub>2</sub>, mold, moisture - can test, Infrared scanning. Monitor Air exchanges - fresh air.

Ingestion - common food, food allergies or radiation (physicians evaluating rashes and hives) FLDOH check for radiation.

Dermal contact - dust - chemicals from cleaning, disinfecting, pesticide treatment and breakdown of furnishings - location of the rash on the body, review of all chemicals used in the building.

Touch and sweat transfer. Semi volatile on not volatile. Need better data on rashes, hives of individual affected employees and then develop the hypothesis.