Dear Dr. Straka,

We write to provide a summary of the very productive meeting that Dr. Kim Signs and I had on July 3 with Dr. Dan O'Brien, Wildlife Veterinarian and Melinda Cosgrove, Laboratory Manager. Dr. Signs and I learned a lot of information that helped provide context for the three Wildlife Disease Laboratory (WDL) staff who recently exhibited conversion to positive tuberculosis (TB) skin tests during recent routine annual screening. These are the first positive skin test results from WDL staff observed in 25 years. The WDL has been conducting testing of hunter harvested deer for *Mycobacterium bovis* (Bovine TB) since the late 1990's. They have also been collecting samples to monitor the Michigan deer herd for the introduction of chronic wasting disease (CWD), since the mid-2000's. Following the detection of CWD in free-ranging deer in Michigan in 2015, the demand for disease testing of hunter harvested deer has increased dramatically. For both tests, hunters must submit their deer heads for examination and sample collection. Whole deer carcasses are also occasionally received. I note here that Dr. Signs and I were asked to provide public health subject matter expertise on tuberculosis and zoonotic disease exposure risks in the context of WDL operations, especially during the 2018-2019 deer hunting season. It was beyond our expertise or scope to attempt to identify specific situations in which exposure to TB may have occurred.

After a discussion of historical and current practices in the WDL, we were given a tour of the WDL spaces where carcasses, and especially deer heads, are processed during the fall deer hunting season. We note here some general observations of the facility and workflow and will then elaborate some points and observations that DNR may want to consider.

<u>General observations</u>

The WDL facilities we observed were spacious and well-appointed with necessary equipment. Space was structurally well-defined into different biosafety levels (BSL), a walk-in cooling chamber, and entrance/egress rooms with appropriate cleansing and decontamination stations. Individual rooms and work areas appeared to contain all relevant surgical, laboratory and personal protective equipment (PPE). All equipment appeared to be clearly labelled and well-organized, with room for staff to work and move efficiently and safely. Air flow in BSL2 and BSL3 rooms appeared to be adequate, but it was beyond our scope or expertise to asses air changes per minute. Engineering inspection and maintenance of the air handling systems in the BSL2 and BSL3 rooms is handled through Michigan State University Facilities Engineers, and they have detailed monitoring and documentation available regarding air flow in those rooms. BSL2 and BSL3 rooms appeared to be cleaned and disinfected with appropriate frequency and diligence.

<u>Observations for DNR to consider</u>

1. There has been a dramatic increase in the volume of deer heads and carcasses submitted for testing in recent hunting seasons. During the 2018-2019 season, over 35,000 deer heads were necropsied, a 50% increase over the 23,000 processed in 2017-18. They indicated that the maximum optimal volume for which the WDL facility was designed is about 20,000 deer heads per season. Concomitant with the large volume of testing, we understood that during the 2018-2019 season, staff typically worked 10 to 11-hour shifts, and often up to 14 hours. Such

excess in testing relative to facility design and the length of duty shifts, could result in an increased risk of occupational exposure in a BSL2 or BSL3 environment.

2. Efforts are made to conduct trimming and sectioning of excised lymph nodes in biosafety cabinets within BSL2 or BSL3 rooms. However, we understood that in high-volume periods, trimming and sectioning is performed in annex rooms with lower rates of air exchange and outside of biosafety cabinets. Performing trimming and sectioning in areas with lower rates of air exchange may result in increased risk of occupational exposure.
3. With the excess volume of deer heads being tested each day, there is insufficient storage space to stage the heads outside of the BSL3 room prior to necropsy. Heads are therefore arranged in rows on the floor of the BSL3 room, often occupying over half of the walkable floor space in the BSL3 room while necropsies are occurring. We understood that coverage of the BSL3 floor space with deer heads typically lasted the entire day. In addition to the physical hazard (i.e. tripping or slipping), we suggest this practice also be evaluated to determine whether the accumulation of deer heads on the floor of the BSL3 room elevates the risk of airborne exposure in that workspace (i.e. potentially exceeding the quantity of infectious particles for which the space or air handling systems were designed).
4. Cleansing of the BSL3 room floor is accomplished daily using high-pressure water hoses and chemical disinfectants. Staff wear appropriate PPE during cleansing procedures, but risks associated with high-pressure washing of potentially infectious materials should be evaluated. We note that airborne transmission of TB due to high-pressure washing has been documented in an elephant care facility in Tennessee.

It is beyond our expertise or scope to evaluate the individual or cumulative contributions these risks may have made toward the recent TB skin test conversions in WDL staff. However, we strongly encourage DNR to seek expert consultation to obtain a full evaluation and risk assessment for the WDL facility and operations. We suggest this be done by a specialist from Michigan Occupational Safety and Health Administration (MIOSHA) or WDL's laboratory regulatory or credentialing authority. We are happy to provide a point of contact for MIOSHA, if desired.

Thank you again for the opportunity to meet and discuss this important situation with your staff, and we will be happy to provide any ongoing assistance you request.