

Resource Enhancement: “Measurable and documented monetary savings”

Name of program: **Texas A&M University Laboratory Equipment Decontamination**

Reason for selection of problem

Since implementation on July 30th of 2015, the Texas A&M Health Science Center (TAMHSC) Laboratory Equipment Decontamination Policy resulted in the completion of 3774 decontamination validations of material originating from within a laboratory or clinic (hereafter lab) by TAMHSC Environmental Health and Safety (EHS) personnel. These decontamination validations could be either large individual pieces of equipment or a moving box full of smaller items, equipment, or supplies. Each validation involved a verbal interview with the lab personnel who performed the appropriate decontamination procedures and completed the accompanying documentation, a visual inspection of the equipment, and then sealing the accessible portions of the equipment or the box itself with tamper-evident tape by the EHS personnel to ensure it moved in an “as-decontaminated” state.

The average time spent per validation is approximately 13 minutes. Total time spent to date by all EHS personnel performing validations is 814.44 person-hours in the 30 months since implementation. The total post-implementation labor cost is \$22,272 in aggregate or \$8,900 per year on average not including time spent on program development, training, or travel time to remote sites. Total cost is calculated using a weighted average of total validations per person and salaries adjusted to an average hourly rate.

The key performance indicator (KPI) chosen to determine program success was whether a reduction occurred in the number of workers' compensation claims or first report of injury forms filed from exposures to contaminated lab equipment. The Texas A&M Health Science Center Risk management team reported no change in the number of claims or forms filed.

Further, when TAMHSC EHS integrated with the Texas A&M University (TAMU) EHS team in 2017, policy standardization was a priority to ensure all campus constituents were protected to the same degree. As the decontamination validation program had not demonstrated a measureable improvement in constituent safety based upon its KPI, it was unreasonable to expand the program to all TAMU and TAMHSC campuses. Thus, this program was a prime candidate for reinvention to become more efficient.

Cost of implementation

The cost to implement the revised program was limited to the time and effort of two full-time EHS employees who drafted the new Standard Administrative Procedure (SAP) governing the equipment decontamination process. Development took approximately one month.

Method of implementation

A new version of the equipment decontamination policy was incorporated into the university-wide SAP governing laboratory decommissioning. The new version places EHS in an appropriate advisory role and directs campus constituents to additional resources to aid in their decontamination efforts.

All components of the validation (verbal interview, visual inspection, and sealing equipment with tamper tape), while still within the rights of EHS to conduct, are no longer a requirement of the policy. This change is a tremendous improvement in the efficiency of the process as EHS was only ever confirming information already attested to by signature on the equipment decontamination form (EDF). The EDF is still required to be completed and attached to each piece of equipment being serviced by non-lab personnel or released to members of the public. The EDF provides locations for lab personnel to describe the specific steps taken to decontaminate the equipment and provides space for EHS to document confirmation surveys in the case of equipment used with radioactive materials or containing an X-ray tube or laser. The EDF also contains a thorough explanation of the ramifications of signing and attesting to proper decontamination; namely all responsibility lies with the signer.

Since the lab staff are in the best positions to know which potential contaminants may be on each piece of equipment, it is best they perform the appropriate decontamination and document their steps. EHS remains in an advisory role to consult on best practices for decontamination, but without the extra unnecessary step of confirming verbally what has been confirmed in writing. Additionally, the visual inspection previously required was not a quantitative certification of cleanliness and cannot be relied upon as a means to judge whether decontamination has occurred, and the tamper tape may offer a false sense of security as it is no guarantee of decontamination. Removal of the EHS validation process eliminates a common

misperception that EHS has “certified” the equipment as free of contamination and places the responsibility for the status of equipment clearly upon the lab staff and equipment owners.

Cost effectiveness

As described above, the total cost for the validations alone, not including process development, implementation, material (e.g., tamper tape, stickers to link equipment to ID record, scissors, etc.) and travel to remote sites, was approximately \$8,900 per year. Eliminating the validation process results in an immediate and ongoing savings of that amount per year. Additionally, restructuring the program allows for its expansion to the entirety of Texas A&M University without added cost.

Online training developed in support of the previous incarnation of the program will continue to be used to instruct lab personnel how to decontaminate equipment. Expanding use of an electronic training does not result in any increased cost regardless of utilization.

Scope of program

The scope was to merge existing TAMU and TAMHSC rules to develop a streamlined equipment decontamination process placing responsibility for ensuring cleanliness on those most appropriate to bear that responsibility: the lab personnel releasing the equipment.

Streamlining in this way greatly improves the efficiency of the equipment decontamination process and eliminates several points of misperception at which a false sense of safety may

have been created. These improvements have allowed the program to expand and cover a larger number of labs at Texas A&M University and thus safeguard campus constituents and members of the public who may interact with lab equipment. The result of the rule merger also improves the original TAMU rule by adding greater detail regarding proper equipment decontamination when not included in a lab decommissioning and thus closing a gap given how often equipment is serviced or transferred independently. An additional improvement with equipment decontamination handled separately in the rule is all those who interact with lab equipment are now explicitly directed to contact EHS should they feel they need assistance.

Flexibility of the program to be adapted at other institutions

There is no barrier to wide-spread adoption of this policy or adaptations of it. Every institution should author a procedure to determine the steps required before lab equipment is decommissioned and potentially released to the public via auction or released to non-lab personnel at the institution for maintenance. As only the lab personnel know which materials in each lab have been used with which equipment, it is the responsibility of the lab personnel to appropriately decontaminate. EHS should always be available in an advisory role, but it is not practical for EHS to take on more responsibility in this process.