

# Lessons Learned & Success Stories – June to August 2016 Report

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The NBACC Lessons Learned and Success Stories Summary serves to reinforce a strong culture of safety and accountability by promoting consistent reporting of mishaps, establishing strong lines of communication with the safety department, supporting a learning environment by allowing others to learn from reported events, and tangibly demonstrating NBACC Leadership’s commitment to safety, accident prevention, and continuous improvement.

## SUCCESS STORIES:

1. Over the past several months, multiple staff members have experienced a near miss event when exiting the NIBC. The sidewalk curbs outside the ECP are misleadingly sloped and blend into the environment. The NBACC facility team stepped up to the challenge and made our work environment safer for everyone walking to the facility.



2. The BNBI Weight Watchers program, which has been ongoing for 11 weeks, has been renewed for another 12 weeks. The program needed to have 15 people to keep the “at work” meetings going, and as of early July, 17 staff members participated in early sign-up for the second session. In the first 11 weeks, BNBI staff lost a total of 332.4 pounds – an average of 30 pounds per week! The benefits of overweight people losing (and keeping off) just 5-10% of body weight are enormous. Benefits include lowering blood pressure and reducing the risk of diabetes, gallbladder disease, sleep apnea, and certain cancers. Happily, more than half of the BNBI Weight Watchers group have succeeded in losing that 5-10%!

3. BNBI's "Wednesday Yoga Lunch" has also become a hugely popular hour. This program has been renewed as well for a second session, thanks to the Leadership Team and a large group of dedicated regular attendees. This class is for all levels and ages. The benefits from yoga are increased flexibility, muscle strength and tone, improved respiration, energy and vitality, maintaining a balanced metabolism, weight reduction, cardio and circulatory health, improved athletic performance, protection from injury and reduced stress (the last two being very important for our lab staff).
4. A staff member was preparing a family meal with a recipe that called for shredding of vegetables. In light of recent safety posters regarding sharp edges and finger cuts, the staff member donned a pair of latex gloves recently purchased in order to protect their hands while shredding the vegetables.
5. While a family member was edging the lawn by a fence another family member approached and initiated a conversation. The person edging the lawn turned around, with the edger still running, to respond and scratched their lower leg in several places with the edger. The family member was wearing shorts and no socks. This initiated a family discussion that while any dangerous equipment was in use, the person operating the equipment would wear appropriate clothing (i.e., long pants, socks, and proper shoes) and should not be approached by another family member for a casual conversation unless absolutely necessary.
6. BNBI has embraced a walking culture! Over the summer, the participants of the BNBI "Walking Club" have walked a total of 11,146 miles, this is the equivalent of walking from NBACC to Cape Alva, Washington, the westernmost point on the US mainland and back twice. Regular walking has numerous health benefits including prevention and management of various conditions; strengthening of bones and muscles; improvement of mood; stress reduction; and improved balance and coordination. All of this is a fancy way of saying that regular walking improves balance and coordination helping to prevent trips, falls and lowering the overall risk of injury.
7. Recently, a staff member was assisting a family member to replace old deck boards. The old boards had many rusty nails protruding from them and they recognized the potential danger to their hands and wore gloves during the process. The gloves protected their hands and the staff member received no injuries.

#### **LESSONS LEARNED:**

1. NBACC spends significant resources on staff training. Prior to being granted access to successive layers within the facility (e.g., office area, facility spaces, BSL-3 labs, BSL-4 labs), staff are required to undergo a level and duration of training that commiserates with the hazards that they may encounter. Why is this important? Because no one deliberately plans for something to go wrong. Access training provides staff with the information they need for responding to an unplanned situation. As outlined in this month's near miss summaries, a staff member encountered a dangerous situation while inside the BSL-4. The staff member followed their training and turned this dangerous situation into an aggravation that was managed in a straightforward manner. When taking training in the future, please remember that there is a reason why you are there and give the training your full attention.
2. There are multiple situations outlined in the near miss summaries where a staff member's awareness of their work area helped to mitigate a potentially dangerous situation.
  - a. A quieter than normal room combined with an unusual smell helped a staff member identify a battery unit which had failed. The significance of this becomes very apparent with the recognition that failed batteries pose a significant fire hazard.
  - b. An unexpected color helped a staff member identify that a cryovial had leaked material onto the outside of the vial.

These two situations help to highlight the importance of maintaining awareness of your surroundings. Whether you are working in a lab, walking in a facility space, or driving home after work, staff should always remember that situational awareness can help you identify, mitigate, and avoid hazardous situations at work and at home.

3. On numerous occasions during the past month, staff members experienced material spills. While each event was somewhat different, it is important to remember that there are universal actions which can be taken to minimize the potential for spills. Small steps like filling containers less, minimizing liquids or adding absorbent material in biohazard bags, and keeping a work area as clear as possible all help to reduce the likelihood of a spill occurring.
4. For the second consecutive month, staff members experienced numerous material spills. All staff should continue to work towards establish work areas and processes that are “spill resistant”. Mentally running through all process step before initiating work combined with small actions like filling containers less, minimizing liquids or adding absorbent material in biohazard bags, and keeping a work area as clear as possible will all help to reduce the likelihood of a spill occurring.
5. It happens to everyone. You are going about your day and you come across something someone else left that isn't right. Sometimes, it an annoyance (i.e. a paper towel on the bathroom floor) or it could pose a safety concern (i.e. spilled coffee on the floor). But now you have a decision to make (pretend you didn't notice vs. taking your time to fix it). On multiple occasions this past month, staff made the right choice by taking the time to correct a situation. In the first instance, two staff took the time to correctly manage a bag of burnt popcorn someone else had put into a garbage can. In the second instance, a staff member took time to move a piece of equipment someone else had left in front of an emergency exit. While seemingly small acts, I think we all owe theses staff members a big "thank you" considering the fact that burnt popcorn can set off the fire alarm (i.e. everyone takes a trip to the parking lot) and a blocked emergency exit can lead to injury if a real event were to happen.
6. For the first time in over a year, NBACC experienced no events during a reporting month. This is a significant accomplishment in which everyone at NBACC owns an equal share in accomplishing. Staff should remember that keeping your mind on your work and always being on the lookout for hazards is the best way to ensure at NBACC remains the safe work environment that we are all be proud of.

#### **EVENT SUMMARIES:**

1. **FIRST AID SUMMARY:** 05/10/2016; A BNBI employee twisted their ankle on flat pavement between the ECP and the NBACC. It was raining and the employee was trying to open an umbrella. The CMA applied first aid, and the injury resulted in no work restrictions.
2. **FIRST AID SUMMARY:** 06/07/2016; A staff member scratched their arm on a door jam in an office area. The CMA applied first aid, and the injury resulted in no work restrictions.
3. **FIRST AID SUMMARY:** 06/14/2016; A staff member scratched their finger on the wall of a BSL-3 hallway while moving the autoclave cart in the tight area around the autoclave. The individual reported placing their hand in-between the wall and cart handle to move it away, and in doing so, their hand became pinched when the cart moved suddenly. This caused a light abrasion due to the texture of the walls in the suite. The CMA applied first aid, and the injury resulted in no work restrictions. Staff should remember to not place their hands (nor other body parts) into pinch points of equipment and/or moving objects.
4. **FIRST AID SUMMARY:** 06/24/2016; A staff member reported that approximately 100mL of immersion oil spilled on their arm while moving equipment after a VHP decon. An open bottle of the oil had

inadvertently been left inside the equipment prior to placing it into the airlock for VHP decontamination. The CMA applied first aid and no work restrictions were issued.

#### **NEAR MISS SUMMARIES:**

1. **LAB PROCESS FAILURE SUMMARY:** 05/11/2016; A BNBI employee reported that they brought a shower bag with toiletries into the BSL-3 containment side change room. The bag and contents were discarded in the suite.
2. **FACILITY PROCESS FAILURE SUMMARY:** 05/11/2016; A BNBI employee reported that a BSL-3 laboratory had very high negative pressure. The room was placed out of service and FMO corrected the issue.
3. **PPE FAILURE SUMMARY:** 05/12/2016; A BNBI employee reported that they were not receiving air flow to their BSL-4 suit (Dover #142) once entering the suite. After repeated attempts to re-establish air flow, the employee followed proper procedures by partly opening the zipper of their suit in the BSL-4 hallway. The zipper was opened three inches for approximately 15 seconds before airflow was re-established, allowing the staff member to exit the suite using normal procedures. The CMA ruled that this was not a potential exposure. Further investigation determined that the inside of the air hose had been gouged during assembly creating a flap which could obstruct air flow depending on the hose orientation. All BSL-4 suits were examined for similar issues.
4. **PPE FAILURE SUMMARY:** 05/13/2016; A BNBI employee reported a pinhole in a Hypalon glove on a Class III BSC during field certification. The CMA ruled that this was not a potential exposure.
5. **PPE FAILURE SUMMARY:** 05/16/2016; A BNBI employee reported a hole in their BSL-4 suit (Sperian #168). The CMA ruled that this was not a potential exposure.
6. **EQUIPMENT FAILURE SUMMARY:** 05/19/2016; The exhaust HEPA filter on a Class II BSC failed its annual certification. The room and BSC were VHP decontaminated and placed back into service. Spot checks for several other BSCs within BSL-3 containment showed no other failures.
7. **LAB PROCESS FAILURE SUMMARY:** 05/23/2016; A BNBI employee reported that a small amount of a disinfectant spilled onto the floor of a BSL-3 airlock. The spill was cleaned up.
8. **FACILITY PROCESS FAILURE SUMMARY:** 06/02/2016; A staff member reported that the personal shower drain clogged with hair in a BSL-3 change room and overflowed. The water was cleaned up and the area was decontaminated with bleach.
9. **LAB PROCESS FAILURE SUMMARY:** 06/02/2016; A staff member reported that they spilled a small amount of water from a syringe in a Class III BSC. The individual was performing process development tasks with non-hazardous materials and was focused on rinsing a piece of equipment by introducing water into one end and drawing it out from another when they withdrew the plunger completely out of the syringe, spilling water into the cabinet.
10. **FACILITY PROCESS FAILURE SUMMARY:** 06/04/2016; The badge reader on the containment side airlock door locked out after an individual entered the airlock from the containment side. The staff member remained in the airlock until another individual walked by and opened the airlock door from inside containment. The badge reader returned to normal operation after the software was reset.
11. **LAB PROCESS FAILURE SUMMARY:** 06/06/2016; A staff member reported that a cryovial, sent from an external laboratory, had leaked its contents onto the outside of the vial in a BSL-3 after observing coloration in the frost on the outside of the vial. The contents of the vial were used (in a BSC) and the vial was discarded.

12. **FACILITY PROCESS FAILURE SUMMARY:** 06/10/2016; A staff member discovered that the outlet supplying power to the containment side change room phone and PAPR charger was not functioning. A review by facility staff determined that the associated circuit breaker had been turned off in support of maintenance activities. The power was restored to the outlet by FMO after the maintenance work was completed.
13. **LAB PROCESS FAILURE SUMMARY:** 06/13/2016; A staff member spilled ~500uL of a RG3 agent near the front of a class II BSC when a dilution tube tipped as the cap was being closed. The spill was cleaned up and the floor of the BSC was surface decontaminated. Best practice is to work a minimum of 4 inches from the front of the BSC, and use absorbent lab diapers when possible.
14. **EQUIPMENT FAILURE SUMMARY:** 06/13/2016; Upon entering a BSL-3 lab, a staff member noticed that the motor for a Class III transfer cart was not running and the room had an odd smell. Recognizing a potential electrical issue, the individual unplugged the unit and reported the issue. Facility staff determined that the uninterruptable power supply (UPS) unit had failed and it was removed from service. Follow up reviews by science staff determined that a UPS was not needed so the unit was not replaced.
15. **LAB PROCESS FAILURE SUMMARY:** 06/14/2016; A staff member reported a spill (5mL) of Vero cells in a BSL-2 BSC. The spill was cleaned up by the individual. The spill occurred when an open bottle was bumped during work activities.
16. **LAB PROCESS FAILURE SUMMARY:** 06/15/2016; A staff member mistakenly entered an airlock prior to the 15 minute duration (a few seconds remained).
17. **LAB PROCESS FAILURE SUMMARY:** 06/15/2016; While working in a BSC in a BSL-2 lab, a staff member picked up a container of bleach in order to wipe underneath it and a small volume of the bleach solution splashed out. The spill was cleaned up by the individual.
18. **LAB PROCESS FAILURE SUMMARY:** 06/16/2016; A staff member reentered a BSL-3 airlock (from the containment side) without required PPE after items requiring the use of additional PPE to move them had been placed into the airlock. The CME ruled no potential exposure.
19. **LAB PROCESS FAILURE SUMMARY:** 06/17/2016; A staff member forgot to apply a waterproof bandage to a cut before entering the containment side of the BSL-3 change room. Another individual passed a bandage to them and it was applied on the containment side change room. The CMA ruled no potential exposure.
20. **LAB PROCESS FAILURE SUMMARY:** 06/20/2016; A staff member reported a spill (@5mL) of propylene glycol on the floor and on a cabinet shelf in a BSL-2 lab. The spill occurred as the result of a container being placed in a storage box upside down by a service vendor. The spill was cleaned up by Health and Safety.
21. **FACILITY PROCESS FAILURE SUMMARY:** 06/23/2016; A staff member reported that the Effluent Decontamination System (EDS) lift station vent Pall filters were completely obstructed to air movement. This obstruction caused a backflow of pressure into the EDS resulting in the system going off-line. The filters were replaced and EDS operations were restored.
22. **FACILITY PROCESS FAILURE SUMMARY:** 06/23/2016; A security guard reported a spill of liquid in an interstitial space. The source was traced to water that had spilled out of an autoclave when the containment side autoclave door was opened due to a failed cycle. The water leaked through the BSL-3 wall and was also discovered in the non-containment side autoclave cabinet. The water then leaked through a floor penetration and down onto the floor of the interstitial space. During the initial spill from the autoclave, a staff member cleaned up the water on the containment side of wall

without RPE. The CMA ruled no potential exposure. To prevent reoccurrence, the autoclaves will be programmed with a new cycle which can bypass the heat probe negating the need to open the door in the event of a timeout or incomplete run.

23. **EQUIPMENT FAILURE SUMMARY:** 06/27/2016; A staff member reported that a closed waste bag containing RG 4 material was leaking onto the floor of the BSC in a BSL-4 lab. The waste bag was placed inside another bag and the spill was cleaned up.
24. **LAB PROCESS FAILURE SUMMARY:** 06/27/2016; A staff member reported that two visitors failed to don latex gloves prior to entering BSL-3 containment as outlined on their escorted laboratorian card. They were instructed to immediately don gloves.
25. **PPE FAILURE SUMMARY:** 06/27/2016; A staff member reported an outer glove tear while wiping down a BSC after its use in BSL-3. The CMA ruled that this was not a potential exposure.
26. **PPE FAILURE SUMMARY:** 06/29/2016; A visitor (auditor) reported a hole in their glove while inspecting a BSL-3 lab. The CMA ruled that this was not a potential exposure.
27. **PPE FAILURE SUMMARY:** 07/06/2016; A BNBI subcontractor reported a glove tear (nitrile) while installing a BSC in a BSL-3 laboratory. The CMA ruled no potential exposure.
28. **PPE FAILURE SUMMARY:** 07/07/2016; A BNBI subcontractor reported that their scrubs tore at the neckline while installing a BSC in a BSL-3 laboratory. The CMA ruled no potential exposure.
29. **PPE FAILURE SUMMARY:** 07/07/2016; A BNBI subcontractor reported a glove tear (nitrile) while installing a BSC in a BSL-3 laboratory. The CMA ruled no potential exposure.
30. **SECURITY PROCESS FAILURE;** 07/07/2016; A staff member did not record the destruction date of BSAT working stocks at the actual time of destruction. The recording error was found later and the documentation was corrected. The RO was notified.
31. **EQUIPMENT FAILURE SUMMARY:** 07/08/2016; A staff member reported that a needle was found to be sticking out of a gap in the lid of a closed sharps container after removing the container from a BSC. The staff member used a set of forceps to push the needle back into the sharps container.
32. **EQUIPMENT FAILURE SUMMARY:** 07/08/2016; A staff member reported that a -80 freezer and an LN<sub>2</sub> freezer in the BSL-4 both went off line resulting in high temperature alarms. It was determined that an electrical breaker had tripped due to an issue with the LN<sub>2</sub> freezer. The breaker was reset and the -80 freezer was returned to service. All materials were moved from the LN<sub>2</sub> freezer into another LN<sub>2</sub> freezer within the suite until repairs could be completed.
33. **LAB PROCESS FAILURE SUMMARY:** 07/11/2016; A staff member spilled a small amount of an inactivated RG4 agent onto the work surface of the BSC. While emptying a 96 well plate, the staff member missed the container filled with disinfectant. Material did not spill out of the BSC.
34. **EQUIPMENT FAILURE SUMMARY:** 07/13/2016; A staff member noticed a small tear in an incubator bag holding plates containing a RG3 agent. The plates were intact and undisturbed, and the bag was immediately moved from the incubator to the BSC. The CMA ruled no potential exposure.
35. **PPE FAILURE SUMMARY:** 07/15/2016; A staff member reported an outer glove tear (latex) while decontaminating a BSC in a BSL-3 laboratory. The CMA ruled no potential exposure.

36. **LAB PROCESS FAILURE SUMMARY:** 07/15/2016; A staff member spilled a small amount of bleach solution onto the work surface of the BSC. The container was bumped into by a multichannel pipette causing bleach to splash out. The CMA ruled no potential exposure.
37. **PPE FAILURE SUMMARY:** 07/18/2016; A staff member reported a glove tear (nitrile) while working in a BSC with cells at BSL-2. The CMA ruled no potential exposure.
38. **FACILITY PROCESS FAILURE SUMMARY:** 07/19/2016; A staff member found a smoldering bag of burnt popcorn in the garbage can in a kitchen area. The bag was removed and doused with water.
39. **LAB PROCESS FAILURE SUMMARY:** 07/20/2016; A staff member forgot to remove their rings and wrist watch prior to entering a BSL-3 laboratory. The items were surface decontaminated and removed from the suite.
40. **LAB PROCESS FAILURE SUMMARY:** 07/20/2016; A sub-contractor entered a room without donning respiratory protection as required by the posted door sign. Subsequently, a staff member directed them to exit the room. The CMA ruled no potential exposure.
41. **EQUIPMENT FAILURE SUMMARY:** 07/25/2016; A staff member reported that a plate seal came off of a 96 well plate, which contained a RG3 agent. They returned the plate to the BSC, then exited the room. The plate seal was found to be defective although all others in the lot were normal. The CMA ruled no potential exposure.
42. **LAB PROCESS FAILURE SUMMARY:** 07/25/2016; A staff member forgot to tape over their wedding rings prior to entering a BSL-3 suite per a previously approved waiver. The rings were immediately taped once the staff member noticed the mistake.
43. **PPE FAILURE SUMMARY:** 07/26/2016; A staff member reported an outer glove tear (nitrile) while working with a RG3 agent in a BSL-3 laboratory. The CMA ruled no potential exposure.
44. **LAB PROCESS FAILURE SUMMARY:** 07/27/2016; A staff member working with a RG3 agent reported that a loop being decontaminated in a container of bleach became entangled with a pipette. The loop came out of the BSC, landing on the floor between two staff members. The CMA ruled no potential exposure.
45. **LAB PROCESS FAILURE SUMMARY:** 07/27/2016; A staff member working in a BSL-3 laboratory reported a spill of cell culture media in a BSC. Staff members were removing a box of pipette tips which were stuck on the moving arm of a pipetting robot when one of the plates was jostled, resulting in a small amount of media coming out of the wells and landing on the lip of the plate.