



May 8, 2020

Mr. Frank P.D. Tran  
Health Physicist  
NRC Region III Material Licensing Branch  
**Mail Control 618689**  
2443 Warrenville Road, Suite 210  
Lisle, IL 60532

RE: Response to your request for additional information for materials license 21-11315-02 for removing room # S6 (walk-in freezer).

Dear Mr. Tran:

This is in response to your letter dated April 22, 2020; request for more information on the room S6 (walk-in freezer).

The S6 walk-in freezer was used for storing radioactive animal carcasses with C-14 and H-3. The freezer has no history of any leaks, and never held sources of any kind. This freezer was last used six years ago (2013) due to an electrical malfunction. At this time the freezer would not hold the temperature and we could no longer store carcasses in it. The carcasses were removed from the freezer, and it has been inactive at least six years.

Please see the attachment of the close-out surveys, instruments used, and wipe test results.

Please contact me at 269-668-3336 extension 2136 if there are any questions, or if further information is required.

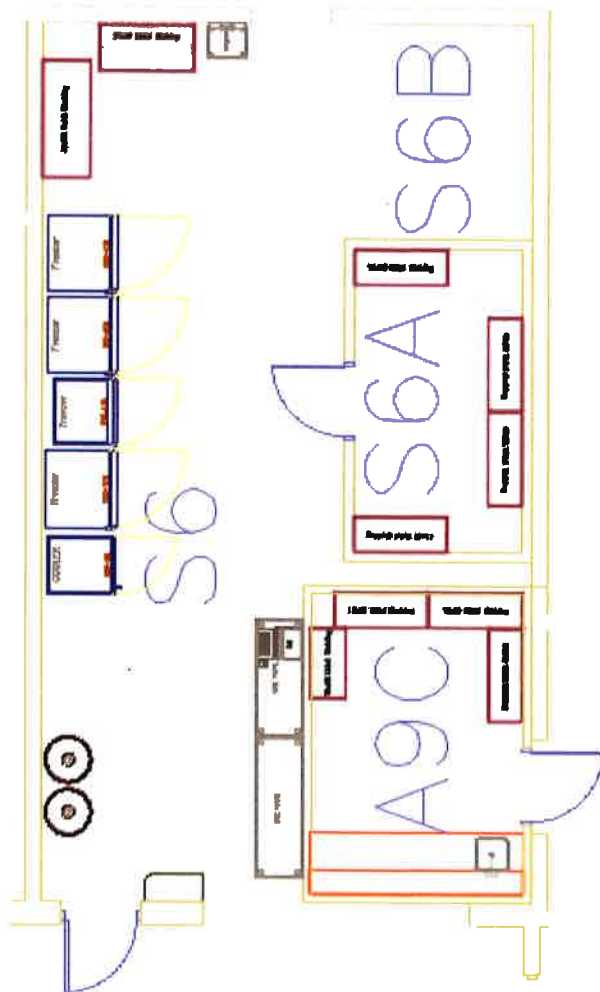
Best Regards,

Aura Kozminske  
Senior Manager Radiation  
Charles River Laboratories  
Aura.kozminske@crl.com

## Decommission Report for Room S6A

Location: S6A walk in freezer

See map



Alex Hamm

Charles River Laboratories

10 April 2020

### **Description of S-6 Freezer Radiation and Contamination Surveys**

The wipe tests and contamination surveys for the defunct walk-in freezer in room S-6 were as follows. First, the shelving inside the freezer was tested thoroughly, as well as the door. Wipe tests were taken of every square foot (wiping the entire square foot of surface) for each horizontal shelf and on the inside of the door, along with smaller areas that were wipe tested including the exterior handle and the light switch. None of the wipe tests came back as over 220 dpm when analyzed by LSC for  $^{14}\text{C}$  and  $^3\text{H}$ , which is the threshold that CRL maintains for loose surface contamination by  $^{14}\text{C}$ . Furthermore, tests with a Ludlum Model 3 counter fitted with a model 44-9 pancake probe did not differ from background counts per minute significantly on any surface. Lastly, a Ludlum 9DP ion chamber did not detect any significant difference from background radiation when compared to any of the space inside the freezer. As such, the shelving units were removed and disposed as non-radioactive.

Because the samples had previously rested upon the horizontal shelves, the areas where contamination was most likely to be had already been tested. To make sure that there was no missed radioactive material, some spot checks were performed on two shelves that had been resting vertically without having any material upon them in the intervening years since the freezer had been used. The wipe tests (4 per side per shelf) did not indicate any loose contamination of  $^3\text{H}$  or  $^{14}\text{C}$ , and as such, were disposed of as non-radioactive. Then, all walls of the freezer were wiped with wet Swiffer mop fittings. The fittings, when picking up the dust and dirt from the inside of the freezer, didn't show any significant counts above background when tested with the Ludlum Model 3 with a pancake probe attached.

Lastly, wipe tests were collected from each wall of the freezer, including the floor, ceiling, and attached fans. None of these wipe tests indicated any contamination by  $^3\text{H}$  or  $^{14}\text{C}$ , and they easily met the conditions that CRL keeps for  $100\text{ cm}^2$  when the surveyed area for each wipe spanned approximately  $1\text{ ft}^2$ . The exterior room of S-6 was also wipe tested and the results did not indicate any contamination from  $^3\text{H}$  or  $^{14}\text{C}$ .

As such, it is the opinion of Charles River Mattawan radiation safety that this area is free from radioactive contamination and ready to be safely removed from the site.

# General Survey Map

Date/Time: 18:05 27 Mar 2020 Location: Outside S-6 freezer Surveyed by (Initials/Date): AKL 27 Mar 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125 ☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☐ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☒ Other De commission

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                                 | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                          |
|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Model: <u>QDP</u> ID #: <u>MSR-320</u>                                                                      | Model: <u>Model 3</u> ID #: <u>MSR-100</u>                                                                               |
| Calibration Due: <u>9 May 2020</u>                                                                          | Calibration Due: <u>13 Dec 2020</u>                                                                                      |
| Background: <u>5.7</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                        |
| Probe: <input type="checkbox"/> _____                                                                       | Probe: <input type="checkbox"/> Gamma (44-2) <input type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92) |
|                                                                                                             | <input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____                                         |

MAP LEGEND:  $\nabla$  = Radiation survey # = Contamination survey 1 = Wipe

Wipe results (dpm/100 cm<sup>2</sup>)

1. 6220
2. 6220
3. 6220
4. 6220
5. 6220
6. 6220
7. 6220
8. 6220
9. 6220
10. 6220
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_
20. \_\_\_\_\_
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

Additional Comments: See results 118-127

Note: Releasing an item as non-rad must be done with a contamination probe.

Review by ACK 10 April 2020

# General Survey Map

Date/Time: 1400 27 March 2020 Location: S-6 Walk in Freezer Surveyed by (Initials/Date): ACK 3/27/2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☒ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Month) (Year)  
 (Circle one) (Year) ☐ Other \_\_\_\_\_

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                            | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DP</u> ID #: <u>MTR-320</u>                                                                 | Model: <u>26</u> ID #: <u>MTR-190</u>                                                                                                                                                                        |
| Calibration Due: <u>9 May 2020</u>                                                                     | Calibration Due: <u>10/22/2020</u>                                                                                                                                                                           |
| Background: <u>8.2</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> µR/hr | Background: <u>40 cpm</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                                                                                        |
| Probe: <input type="checkbox"/> <u>NA</u>                                                              | Probe: <input type="checkbox"/> Gamma (44-2) <input type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92)<br><input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____ |

Using The Swipher and Scanned  
 using MTR-190 Model 26 cal due 10/22/2020  
 Nothing found above background.

MAP LEGEND: ↗ = Radiation survey # = Contamination survey ① = Wipe

Wipe results (dpm/100 cm<sup>2</sup>)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_
20. \_\_\_\_\_
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

Additional Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 15:00 27 Mar 2020 Location: S-6 Freezer Surveyed by (Initials/Date): QIT 27 Mar 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☒ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☒ Other \_\_\_\_\_ Decommission

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                                 | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                     |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DP</u> ID #: <u>MTR-320</u>                                                                      | Model: <u>Model 3</u> ID #: <u>MTR-100</u>                                                                                          |
| Calibration Due: <u>9 May 2020</u>                                                                          | Calibration Due: <u>13 Dec 2020</u>                                                                                                 |
| Background: <u>5.7</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                   |
| Probe: <input type="checkbox"/> <u>NA</u>                                                                   | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92) |
|                                                                                                             | <input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____                                                    |

MAP LEGEND: ↑ = Radiation survey # = Contamination survey (1) = Wipe

Wipe results (dpm/100 cm<sup>2</sup>)

1. <220
2. <220
3. <220
4. <220
5. <220
6. <220
7. <220
8. <220
9. <220
10. <220
11. <220
12. <220
13. <220
14. <220
15. <220
16. <220
17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_
20. \_\_\_\_\_
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

Additional Comments: See results 102-117

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 17<sup>00</sup> 27 Mar 2020 Location: S-6 Freezer Surveyed by (Initials/Date): ACK & AN 27 Mar 2020  
3/27/20

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☒ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Month) (Year)  
 (Circle one) ☒ Other \_\_\_\_\_ Decommission

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                            | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                     |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DP</u> ID #: <u>MTR-320</u>                                                                 | Model: <u>Model 3</u> ID #: <u>MTR-100</u>                                                                                          |
| Calibration Due: <u>9 May 2020</u>                                                                     | Calibration Due: <u>13 Dec 2020</u>                                                                                                 |
| Background: <u>4.6</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> µR/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                   |
| Probe: <input type="checkbox"/> <u>NA</u>                                                              | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92) |
|                                                                                                        | <input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____                                                    |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Wipe results (dpm/100 cm <sup>2</sup> )                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | 1. <u>6220</u><br>2. <u>6220</u><br>3. <u>6220</u><br>4. <u>6220</u><br>5. <u>6220</u><br>6. <u>6220</u><br>7. <u>6220</u><br>8. <u>6220</u><br>9. <u>6220</u><br>10. <u>6220</u><br>11. <u>6220</u><br>12. <u>6220</u><br>13. <u>6220</u><br>14. <u>6220</u><br>15. <u>6220</u><br>16. <u>6220</u><br>17. <u>6220</u><br>18. <u>6220</u><br>19. <u>6220</u><br>20. <u>6220</u><br>21. _____<br>22. _____<br>23. _____<br>24. _____<br>25. _____<br>26. _____<br>27. _____<br>28. _____ |

MAP LEGEND: ↑ = Radiation survey # = Contamination survey 1 = Wipe

Additional Comments: See results 2-21

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 27 MAR 2020 17:13 Location: S-6 Freezer Surveyed by (Initials/Date): ACK # Call 27 Mar 2020  
3/27/2020  
 Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☒ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Circle one) (Year) ☒ Other \_\_\_\_\_ Decommission (Month) (Year)

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                                 | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                     |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DP</u> ID #: <u>MTR-320</u>                                                                      | Model: <u>Model 3</u> ID #: <u>MTR-100</u>                                                                                          |
| Calibration Due: <u>9 May 2020</u>                                                                          | Calibration Due: <u>13 Dec 2020</u>                                                                                                 |
| Background: <u>7.8</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                   |
| Probe: <input type="checkbox"/> <u>NA</u>                                                                   | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92) |
|                                                                                                             | <input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____                                                    |

|                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%; text-align: center;"> <p>① <u>Wall # 2</u></p> <p>③</p> <p>⑤</p> <p>⑦</p> <p>⑨</p> </div> <div style="width: 50%; text-align: center;"> <p>②</p> <p>④</p> <p>⑥</p> <p>⑧</p> <p>⑩</p> </div> </div> | <p>Wipe results (dpm/100 cm<sup>2</sup>)</p> <ol style="list-style-type: none"> <li>1. <u>6220</u></li> <li>2. <u>6220</u></li> <li>3. <u>6220</u></li> <li>4. <u>6220</u></li> <li>5. <u>6220</u></li> <li>6. <u>6220</u></li> <li>7. <u>6220</u></li> <li>8. <u>6220</u></li> <li>9. <u>6220</u></li> <li>10. <u>6220</u></li> <li>11. _____</li> <li>12. _____</li> <li>13. _____</li> <li>14. _____</li> <li>15. _____</li> <li>16. _____</li> <li>17. _____</li> <li>18. _____</li> <li>19. _____</li> <li>20. _____</li> <li>21. _____</li> <li>22. _____</li> <li>23. _____</li> <li>24. _____</li> <li>25. _____</li> <li>26. _____</li> <li>27. _____</li> <li>28. _____</li> </ol> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

MAP LEGEND: ↗ = Radiation survey # = Contamination survey ① = Wipe

Additional Comments: See results 22-31

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 17:20 27 May 2020 Location: S-6 Freezer Surveyed by (Initials/Date): ACK & AD 27 May 2020  
3/21/20

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☒ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☒ Other \_\_\_\_\_ Decommission

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                            | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                     |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DP</u> ID #: <u>MTR-320</u>                                                                 | Model: <u>Model 3</u> ID #: <u>MTR-100</u>                                                                                          |
| Calibration Due: <u>9 May 2020</u>                                                                     | Calibration Due: <u>13 Dec 2020</u>                                                                                                 |
| Background: <u>4.6</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> µR/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                   |
| Probe: <input type="checkbox"/> <u>NA</u>                                                              | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92) |
|                                                                                                        | <input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____                                                    |

| Wipe results (dpm/100 cm <sup>2</sup> ) |
|-----------------------------------------|
| 1. <u>6220</u>                          |
| 2. <u>6220</u>                          |
| 3. <u>6220</u>                          |
| 4. <u>6220</u>                          |
| 5. <u>6220</u>                          |
| 6. <u>6220</u>                          |
| 7. <u>6220</u>                          |
| 8. <u>6220</u>                          |
| 9. <u>6220</u>                          |
| 10. <u>6220</u>                         |
| 11. <u>6220</u>                         |
| 12. <u>6220</u>                         |
| 13. <u>6220</u>                         |
| 14. <u>6220</u>                         |
| 15. <u>6220</u>                         |
| 16. <u>6220</u>                         |
| 17. <u>6220</u>                         |
| 18. <u>6220</u>                         |
| 19. <u>6220</u>                         |
| 20. <u>6220</u>                         |
| 21. _____                               |
| 22. _____                               |
| 23. _____                               |
| 24. _____                               |
| 25. _____                               |
| 26. _____                               |
| 27. _____                               |
| 28. _____                               |

Additional Comments: see results 32-51

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 17:35 27 Mar 2020 Location: S-6 Surveyed by (Initials/Date): ACK 3/27/20

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☒ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☐ Other \_\_\_\_\_

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                            | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DD</u> ID #: <u>MTR-320</u>                                                                 | Model: <u>3</u> ID #: <u>MTR-100</u>                                                                                                                                                                                    |
| Calibration Due: <u>9 May 2020</u>                                                                     | Calibration Due: <u>13 Dec 2020</u>                                                                                                                                                                                     |
| Background: <u>6.2</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> µR/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                                                                                                       |
| Probe: <input type="checkbox"/> <u>NA</u>                                                              | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92)<br><input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____ |

⑨

⑦

⑤

③

①

⑩

⑧

⑥

④

②

Wall # 4

**MAP LEGEND:** ↗ = Radiation survey # = Contamination survey ① = Wipe

Wipe results (dpm/100 cm<sup>2</sup>)

1. 6220
2. 6220
3. 6220
4. 6220
5. 6220
6. 6220
7. 6220
8. 6220
9. 6220
10. 6220
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_
20. \_\_\_\_\_
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

Additional Comments: See results 02-61

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 1745 27 MAR 2020 Location: S-6 Surveyed by (Initials/Date): ACK 3/27/20

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☒ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Month) (Year)  
 (Circle one) (Year)

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                            | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>95P</u> ID #: <u>MTR-320</u>                                                                 | Model: <u>3</u> ID #: <u>MTR-100</u>                                                                                                                                                                                    |
| Calibration Due: <u>9 May 2020</u>                                                                     | Calibration Due: <u>13 Dec 2020</u>                                                                                                                                                                                     |
| Background: <u>4.8</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> µR/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                                                                                                       |
| Probe: <input type="checkbox"/> <u>NA</u>                                                              | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92)<br><input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____ |

Ceiling

MAP LEGEND: ↗ = Radiation survey # = Contamination survey 1 = Wipe

Wipe results (dpm/100 cm<sup>2</sup>)

1. < 220
2. < 220
3. < 220
4. < 220
5. < 220
6. < 220
7. < 220
8. < 220
9. < 220
10. < 220
11. < 220
12. < 220
13. < 220
14. < 220
15. < 220
16. < 220
17. < 220
18. < 220
19. < 220
20. < 220
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

Additional Comments: see results 62-81

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 17:50 27 Mar 2020 Location: S-6 Surveyed by (Initials/Date): ACK 3/27/20 27 Mar 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☒ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☐ Other \_\_\_\_\_

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                            | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>95D</u> ID #: <u>MTR-320</u>                                                                 | Model: <u>3</u> ID #: <u>MTR-100</u>                                                                                                                                                                                    |
| Calibration Due: <u>9 May 2020</u>                                                                     | Calibration Due: <u>13 Dec 2020</u>                                                                                                                                                                                     |
| Background: <u>4.8</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> µR/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                                                                                                       |
| Probe: <input type="checkbox"/> <u>NA</u>                                                              | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92)<br><input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____ |

|                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;"><u>FLOOR</u></p>                           | <p>Wipe results (dpm/100 cm²)</p> <ol style="list-style-type: none"> <li>1. <u>6220</u></li> <li>2. <u>6220</u></li> <li>3. <u>6220</u></li> <li>4. <u>6220</u></li> <li>5. <u>6220</u></li> <li>6. <u>6220</u></li> <li>7. <u>6220</u></li> <li>8. <u>6220</u></li> <li>9. <u>6220</u></li> <li>10. <u>6220</u></li> <li>11. <u>6220</u></li> <li>12. <u>6220</u></li> <li>13. <u>6220</u></li> <li>14. <u>6220</u></li> <li>15. <u>6220</u></li> <li>16. <u>6220</u></li> <li>17. <u>6220</u></li> <li>18. <u>6220</u></li> <li>19. <u>6220</u></li> <li>20. <u>6220</u></li> <li>21. _____</li> <li>22. _____</li> <li>23. _____</li> <li>24. _____</li> <li>25. _____</li> <li>26. _____</li> <li>27. _____</li> <li>28. _____</li> </ol> |
| <p>MAP LEGEND: ↗ = Radiation survey # = Contamination survey 1 = Wipe</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

Additional Comments: see results 82-101

Note: Releasing an item as non-rad must be done with a contamination probe.

# Assay Definition-

## Assay Description:

Assay Type: DPM (Dual)

Report Name: Report1

Output Data Path: C:\Packard\Tricarb\Results\

Raw Results Path: C:\Packard\Tricarb\Results\A\_Hamm\3H\_14C\_UG\20200327\_1751\20200327\_1751.results

Assay File Name: C:\Packard\TriCarb\Assays\3H\_14C\_UG.lsa

## Count Conditions-

Nuclide: 3H-14C

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s%

Pre-Count Delay (min): 0.00

Quench Sets:

Low Energy: 3H Ultima Gold

Mid Energy: 14C Ultima Gold

Count Time (min): 1.00

Count Mode: Normal

Assay Count Cycles: 1

Repeat Sample Count: 1

#Vials/Sample: 1

Calculate % Reference: Off

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: Off

| Regions | LL   | UL    |
|---------|------|-------|
| A       | 0.0  | 12.0  |
| B       | 12.0 | 156.0 |
| C       | 0.0  | 0.0   |

Q11  
 27 Mar 2020

## Count Corrections-

Static Controller: On

Luminescence Correction: Off

Colored Samples: Off

Heterogeneity Monitor: n/a

Coincidence Time (nsec): 18

Delay Before Burst (nsec): 75

## Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---------|-----------|-------|----------------|----------------|
| A       |           |       |                |                |
| B       |           |       |                |                |
| C       |           |       |                |                |

## Cycle 1 Results

| S# | DPM1 | DPM2 | Count | Time | CPMA | CPMB  | SIS    | tSIE   | MESSAGES |
|----|------|------|-------|------|------|-------|--------|--------|----------|
| 1  | 22   | 10   | 1.00  | 11   | 9    | 69.34 | 606.28 | 475.49 | -blank   |
| 2  | 33   | 13   | 1.00  | 14   | 12   | 68.83 | 475.49 | 467.85 |          |
| 3  | 18   | 12   | 1.00  | 8    | 11   | 57.40 | 442.18 | 442.18 |          |
| 4  | 21   | 22   | 1.00  | 10   | 19   | 42.53 | 53.85  | 447.27 |          |
| 5  | 9    | 17   | 1.00  | 5    | 14   | 53.85 | 62.01  | 412.25 |          |
| 6  | 17   | 26   | 1.00  | 8    | 22   | 62.01 | 55.43  | 365.32 |          |
| 7  | 22   | 21   | 1.00  | 9    | 18   | 55.43 | 72.67  | 429.94 |          |
| 8  | 8    | 26   | 1.00  | 6    | 21   | 72.67 | 48.84  | 346.72 |          |
| 9  | 18   | 25   | 1.00  | 8    | 21   | 48.84 | 38.92  | 452.35 |          |
| 10 | 28   | 18   | 1.00  | 12   | 16   | 38.92 |        |        |          |

S-6 Freezer Decommission 27 March 2020

AD  
27 Mar 2020

|    |    |    |      |    |    |       |        |
|----|----|----|------|----|----|-------|--------|
| 11 | 31 | 17 | 1.00 | 13 | 15 | 46.37 | 440.64 |
| 12 | 16 | 27 | 1.00 | 9  | 23 | 67.46 | 445.36 |
| 13 | 51 | 40 | 1.00 | 18 | 34 | 40.59 | 319.10 |
| 14 | 25 | 24 | 1.00 | 9  | 20 | 41.37 | 316.70 |
| 15 | 25 | 15 | 1.00 | 8  | 13 | 38.25 | 303.61 |
| 16 | 15 | 19 | 1.00 | 7  | 16 | 34.79 | 392.34 |
| 17 | 15 | 24 | 1.00 | 6  | 20 | 53.77 | 281.66 |
| 18 | 15 | 19 | 1.00 | 8  | 16 | 78.24 | 493.62 |
| 19 | 36 | 10 | 1.00 | 7  | 9  | 31.90 | 213.03 |
| 20 | 27 | 11 | 1.00 | 12 | 10 | 34.36 | 474.12 |
| 21 | 27 | 16 | 1.00 | 13 | 14 | 54.01 | 526.94 |
| 22 | 31 | 20 | 1.00 | 15 | 18 | 40.68 | 562.66 |
| 23 | 24 | 16 | 1.00 | 11 | 15 | 55.06 | 504.67 |
| 24 | 22 | 22 | 1.00 | 11 | 19 | 69.92 | 482.01 |
| 25 | 14 | 22 | 1.00 | 8  | 19 | 86.76 | 500.78 |
| 26 | 6  | 26 | 1.00 | 6  | 22 | 67.93 | 527.24 |
| 27 | 27 | 13 | 1.00 | 12 | 12 | 35.18 | 484.51 |
| 28 | 18 | 9  | 1.00 | 8  | 8  | 42.23 | 502.97 |
| 29 | 11 | 19 | 1.00 | 7  | 16 | 92.29 | 574.15 |
| 30 | 28 | 19 | 1.00 | 14 | 17 | 53.13 | 546.13 |
| 31 | 27 | 16 | 1.00 | 13 | 14 | 67.14 | 530.72 |
| 32 | 18 | 14 | 1.00 | 9  | 12 | 52.54 | 547.63 |
| 33 | 11 | 21 | 1.00 | 7  | 18 | 62.05 | 555.54 |
| 34 | 52 | 19 | 1.00 | 23 | 18 | 40.93 | 527.28 |
| 35 | 23 | 17 | 1.00 | 11 | 15 | 62.10 | 510.41 |
| 36 | 34 | 15 | 1.00 | 16 | 14 | 60.78 | 554.38 |
| 37 | 15 | 8  | 1.00 | 7  | 7  | 40.35 | 545.44 |
| 38 | 12 | 17 | 1.00 | 7  | 15 | 55.37 | 533.10 |
| 39 | 19 | 16 | 1.00 | 10 | 14 | 57.85 | 575.01 |
| 40 | 19 | 20 | 1.00 | 10 | 18 | 68.10 | 499.77 |
| 41 | 22 | 18 | 1.00 | 11 | 16 | 56.32 | 558.62 |
| 42 | 22 | 13 | 1.00 | 10 | 12 | 58.51 | 530.82 |
| 43 | 24 | 15 | 1.00 | 11 | 13 | 42.27 | 486.09 |
| 44 | 20 | 26 | 1.00 | 11 | 22 | 54.84 | 505.81 |
| 45 | 31 | 14 | 1.00 | 14 | 13 | 41.34 | 512.48 |
| 46 | 22 | 16 | 1.00 | 11 | 14 | 46.77 | 524.40 |
| 47 | 24 | 19 | 1.00 | 13 | 16 | 77.62 | 567.15 |
| 48 | 23 | 11 | 1.00 | 11 | 10 | 54.84 | 537.26 |
| 49 | 38 | 15 | 1.00 | 17 | 14 | 36.89 | 525.05 |
| 50 | 37 | 13 | 1.00 | 16 | 12 | 38.00 | 473.07 |
| 51 | 32 | 23 | 1.00 | 14 | 20 | 47.87 | 445.71 |
| 52 | 10 | 12 | 1.00 | 5  | 10 | 96.67 | 466.91 |
| 53 | 25 | 13 | 1.00 | 12 | 12 | 59.05 | 552.67 |
| 54 | 31 | 15 | 1.00 | 14 | 14 | 46.77 | 504.25 |
| 55 | 12 | 17 | 1.00 | 7  | 15 | 59.90 | 545.61 |
| 56 | 32 | 27 | 1.00 | 16 | 24 | 46.91 | 517.41 |
| 57 | 11 | 23 | 1.00 | 6  | 19 | 67.06 | 381.49 |
| 58 | 26 | 17 | 1.00 | 13 | 15 | 72.45 | 538.75 |
| 59 | 39 | 16 | 1.00 | 18 | 15 | 58.34 | 542.54 |
| 60 | 31 | 9  | 1.00 | 14 | 8  | 30.57 | 523.09 |
| 61 | 33 | 13 | 1.00 | 15 | 12 | 49.84 | 530.18 |
| 62 | 19 | 20 | 1.00 | 9  | 17 | 36.48 | 421.30 |
| 63 | 25 | 15 | 1.00 | 12 | 14 | 53.03 | 554.40 |
| 64 | 16 | 10 | 1.00 | 8  | 9  | 58.39 | 575.35 |
| 65 | 23 | 22 | 1.00 | 12 | 19 | 45.48 | 542.92 |
| 66 | 37 | 14 | 1.00 | 16 | 13 | 35.17 | 492.36 |
| 67 | 13 | 21 | 1.00 | 8  | 18 | 58.03 | 539.48 |
| 68 | 16 | 23 | 1.00 | 9  | 20 | 58.75 | 507.99 |
| 69 | 15 | 15 | 1.00 | 8  | 13 | 54.30 | 535.24 |
| 70 | 33 | 24 | 1.00 | 17 | 21 | 58.54 | 562.30 |
| 71 | 19 | 29 | 1.00 | 8  | 24 | 47.40 | 305.29 |
| 72 | 22 | 12 | 1.00 | 10 | 11 | 41.89 | 503.48 |
| 73 | 26 | 17 | 1.00 | 13 | 15 | 53.31 | 526.27 |

wall #1

wall #2

wall #3

wall #4

ceiling

## S-6 Freezer Decommission 27 March 2020

|     |    |    |      |    |    |       |        |
|-----|----|----|------|----|----|-------|--------|
| 74  | 37 | 11 | 1.00 | 17 | 11 | 40.25 | 565.59 |
| 75  | 39 | 7  | 1.00 | 17 | 7  | 32.97 | 535.02 |
| 76  | 35 | 19 | 1.00 | 17 | 17 | 36.58 | 551.62 |
| 77  | 19 | 18 | 1.00 | 10 | 16 | 41.61 | 523.36 |
| 78  | 23 | 16 | 1.00 | 12 | 14 | 56.30 | 584.59 |
| 79  | 26 | 14 | 1.00 | 13 | 13 | 32.59 | 580.46 |
| 80  | 41 | 16 | 1.00 | 20 | 15 | 38.71 | 581.77 |
| 81  | 24 | 11 | 1.00 | 11 | 10 | 60.42 | 551.77 |
| 82  | 23 | 21 | 1.00 | 12 | 18 | 42.96 | 555.98 |
| 83  | 22 | 12 | 1.00 | 11 | 11 | 50.27 | 580.96 |
| 84  | 27 | 17 | 1.00 | 14 | 15 | 48.90 | 586.44 |
| 85  | 39 | 15 | 1.00 | 18 | 14 | 52.01 | 543.35 |
| 86  | 24 | 19 | 1.00 | 13 | 17 | 51.31 | 584.05 |
| 87  | 23 | 24 | 1.00 | 13 | 21 | 64.27 | 595.99 |
| 88  | 34 | 19 | 1.00 | 17 | 17 | 64.20 | 580.24 |
| 89  | 26 | 20 | 1.00 | 14 | 17 | 57.70 | 569.16 |
| 90  | 22 | 16 | 1.00 | 10 | 14 | 43.54 | 472.19 |
| 91  | 30 | 11 | 1.00 | 10 | 10 | 34.99 | 355.45 |
| 92  | 26 | 16 | 1.00 | 11 | 14 | 56.91 | 441.60 |
| 93  | 30 | 19 | 1.00 | 14 | 17 | 36.53 | 495.63 |
| 94  | 21 | 8  | 1.00 | 8  | 7  | 36.33 | 416.13 |
| 95  | 35 | 12 | 1.00 | 15 | 11 | 62.66 | 483.97 |
| 96  | 26 | 22 | 1.00 | 12 | 19 | 74.22 | 440.27 |
| 97  | 26 | 11 | 1.00 | 10 | 10 | 45.26 | 412.04 |
| 98  | 17 | 25 | 1.00 | 9  | 21 | 54.41 | 453.29 |
| 99  | 16 | 15 | 1.00 | 6  | 13 | 33.83 | 338.60 |
| 100 | 44 | 18 | 1.00 | 14 | 16 | 42.59 | 331.98 |
| 101 | 30 | 21 | 1.00 | 11 | 18 | 39.10 | 363.75 |
| 102 | 45 | 20 | 1.00 | 18 | 18 | 54.96 | 435.27 |
| 103 | 14 | 14 | 1.00 | 6  | 12 | 46.19 | 392.02 |
| 104 | 3  | 25 | 1.00 | 3  | 19 | 42.90 | 211.37 |
| 105 | 47 | 28 | 1.00 | 11 | 23 | 36.49 | 225.51 |
| 106 | 22 | 12 | 1.00 | 7  | 11 | 38.79 | 323.01 |
| 107 | 29 | 18 | 1.00 | 10 | 16 | 40.87 | 333.45 |
| 108 | 22 | 11 | 1.00 | 9  | 10 | 55.79 | 444.00 |
| 109 | 2  | 21 | 1.00 | 3  | 16 | 36.70 | 243.51 |
| 110 | 32 | 20 | 1.00 | 10 | 17 | 34.09 | 297.88 |
| 111 | 32 | 16 | 1.00 | 9  | 14 | 35.90 | 276.89 |
| 112 | 16 | 17 | 1.00 | 6  | 14 | 51.68 | 319.39 |
| 113 | 38 | 13 | 1.00 | 15 | 12 | 39.20 | 449.75 |
| 114 | 29 | 18 | 1.00 | 10 | 15 | 43.24 | 328.68 |
| 115 | 4  | 24 | 1.00 | 4  | 19 | 48.39 | 288.80 |
| 116 | 54 | 18 | 1.00 | 13 | 16 | 30.91 | 257.98 |
| 117 | 33 | 21 | 1.00 | 11 | 18 | 48.34 | 325.36 |
| 118 | 64 | 21 | 1.00 | 13 | 18 | 23.95 | 222.25 |
| 119 | 33 | 19 | 1.00 | 14 | 17 | 45.58 | 446.31 |
| 120 | 16 | 20 | 1.00 | 7  | 17 | 51.76 | 347.19 |
| 121 | 27 | 29 | 1.00 | 12 | 25 | 54.29 | 393.21 |
| 122 | 7  | 21 | 1.00 | 5  | 18 | 73.03 | 467.79 |
| 123 | 45 | 15 | 1.00 | 19 | 14 | 40.93 | 476.76 |
| 124 | 36 | 15 | 1.00 | 17 | 14 | 36.84 | 564.68 |
| 125 | 29 | 12 | 1.00 | 11 | 11 | 33.51 | 412.84 |
| 126 | 30 | 13 | 1.00 | 12 | 12 | 38.92 | 438.26 |
| 127 | 54 | 14 | 1.00 | 22 | 13 | 34.78 | 461.09 |

Ceiling, cond.

Floor

S-6 Freezer  
ShelvesC.H.  
27 Mar 2020Outside S-6  
Freezer

# General Survey Map

Date/Time: 5 Mar 2020 14:45 Location: S-6 Freezer Surveyed by (Initials/Date): elt 5 Mar 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☐ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☒ Other \_\_\_\_\_ Decommission

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                                 | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                     |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DP</u> ID #: <u>MTR-320</u>                                                                      | Model: <u>Model 3</u> ID #: <u>MTR-100</u>                                                                                          |
| Calibration Due: <u>9 May 2020</u>                                                                          | Calibration Due: <u>13 Dec 2020</u>                                                                                                 |
| Background: <u>5.7</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                   |
| Probe: <input type="checkbox"/> _____                                                                       | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92) |
|                                                                                                             | <input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____                                                    |

20 cpm

40 cpm

bottom level, double shelf

6.0  $\mu$ R/hr

MAP LEGEND: ↗ = Radiation survey # = Contamination survey (1) = Wipe

Wipe results (dpm/100 cm<sup>2</sup>)

1. 4220
2. 4220
3. 4220
4. 4220
5. 4220
6. 4220
7. 4220
8. 4220
9. 4220
10. 4220
11. 4220
12. 4220
13. 4220
14. 4220
15. 4220
16. 4220
17. 4220
18. 4220
19. 4220
20. 4220
21. 4220
22. 4220
23. 4220
24. 4220
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

Additional Comments: 1 ft<sup>2</sup> wipes

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 5 Mar 2020 15:06 Location: S-6 Freezer Surveyed by (Initials/Date): ALH 5 Mar 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☐ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☒ Other \_\_\_\_\_ Decommission

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                                 | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                     |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DP</u> ID #: <u>MTR-320</u>                                                                      | Model: <u>Model 3</u> ID #: <u>MTR-100</u>                                                                                          |
| Calibration Due: <u>9 May 2020</u>                                                                          | Calibration Due: <u>13 Dec 2020</u>                                                                                                 |
| Background: <u>5.7</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                   |
| Probe: <input type="checkbox"/> _____                                                                       | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92) |
|                                                                                                             | <input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____                                                    |

MAP LEGEND: ↑ = Radiation survey # = Contamination survey 1 = Wipe

Wipe results (dpm/100 cm<sup>2</sup>)

1. 6220
2. 6220
3. 6220
4. 6220
5. 6220
6. 6220
7. 6220
8. 6220
9. 6220
10. 6220
11. 6220
12. 6220
13. 6220
14. 6220
15. 6220
16. 6220
17. 6220
18. 6220
19. 6220
20. 6220
21. 6220
22. 6220
23. 6220
24. 6220
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

Additional Comments: 1 ff<sup>2</sup> wipes

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 5 Mar 2020 15:35 Location: S-6 Freezer Surveyed by (Initials/Date): AB 5 Mar 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☐ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☒ Other \_\_\_\_\_ Decommission

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                                 | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                     |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DP</u> ID #: <u>MTR-320</u>                                                                      | Model: <u>Model 3</u> ID #: <u>MTR-100</u>                                                                                          |
| Calibration Due: <u>9 May 2020</u>                                                                          | Calibration Due: <u>13 Dec 2020</u>                                                                                                 |
| Background: <u>5.7</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr | Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                   |
| Probe: <input type="checkbox"/> _____                                                                       | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92) |
|                                                                                                             | <input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____                                                    |

Wipe results (dpm/100 cm<sup>2</sup>)

1. 4220
2. 4220
3. 4220
4. 4220
5. 4220
6. 4220
7. 4220
8. 4220
9. 4220
10. 4220
11. 4220
12. 4220
13. 4220
14. 4220
15. 4220
16. 4220
17. 4220
18. 4220
19. 4220
20. 4220
21. 4220
22. 4220
23. 4220
24. 4220
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

Additional Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Note: Releasing an item as non-rad must be done with a contamination probe.

Assay Definition-

Assay Description:

Assay Type: DPM (Dual)  
Report Name: Report1  
Output Data Path: C:\Packard\Tricarb\Results\a\_hamm\3H14C Wipe Test\20200305\_1724  
Raw Results Path: C:\Packard\Tricarb\Results\a\_hamm\3H14C Wipe Test\20200305\_1724\20200305\_1724.results  
RTF File Name: C:\Packard\Tricarb\Results\a\_hamm\3H14C Wipe Test\20200305\_1724\Report1.rtf  
Assay File Name: C:\Packard\TriCarb\Assays\3H14C Wipe Test.lsa

Count Conditions-

Nuclide: 3H14C-UG  
Quench Indicator: tSIE/AEC  
External Std Terminator (sec): 0.5 2s%  
Pre-Count Delay (min): 0.00  
Quench Sets:  
Low Energy: 14C Ultima Gold  
Mid Energy: 3H Ultima Gold  
Count Time (min): 1.00  
Count Mode: Normal  
Assay Count Cycles: 1  
#Vials/Sample: 1  
Repeat Sample Count: 1  
Calculate % Reference: Off

Q11

5 Mar 2020

Background Subtract: Off  
Low CPM Threshold: Off  
2 Sigma % Terminator: Off

| Regions | LL   | UL    |
|---------|------|-------|
| A       | 0.0  | 12.0  |
| B       | 12.0 | 156.0 |
| C       | 0.0  | 0.0   |

Count Corrections-

Static Controller: On  
Colored Samples: Off  
Coincidence Time (nsec): 18  
Luminescence Correction: Off  
Heterogeneity Monitor: n/a  
Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---------|-----------|-------|----------------|----------------|
| A       |           |       |                |                |
| B       |           |       |                |                |
| C       |           |       |                |                |

Cycle 1 Results

| S# | Count | Time | CPMA | CPMB | DPM1 | DPM2 | SIS   | tSIE   | MESSAGES |
|----|-------|------|------|------|------|------|-------|--------|----------|
| 1  | 1.00  |      | 9    | 15   | 18   | 15   | 50.56 | 572.44 | -blank   |
| 2  | 1.00  |      | 17   | 15   | 15   | 82   | 29.69 | 229.40 |          |
| 3  | 1.00  |      | 45   | 19   | 14   | 205  | 17.93 | 254.30 |          |
| 4  | 1.00  |      | 2    | 10   | 13   | 5    | 23.94 | 198.20 |          |
| 5  | 1.00  |      | 30   | 19   | 17   | 204  | 17.25 | 181.08 |          |
| 6  | 1.00  |      | 29   | 21   | 21   | 125  | 23.82 | 257.07 |          |
| 7  | 1.00  |      | 35   | 20   | 18   | 151  | 24.12 | 262.12 |          |
| 8  | 1.00  |      | 25   | 25   | 27   | 107  | 31.52 | 244.80 |          |
| 9  | 1.00  |      | 31   | 22   | 21   | 207  | 16.43 | 182.95 |          |

bottom level

Freezer Decommission 5 Mar 2020

|    |      |    |    |    |     |       |        |
|----|------|----|----|----|-----|-------|--------|
| 10 | 1.00 | 9  | 17 | 20 | 41  | 38.58 | 213.06 |
| 11 | 1.00 | 26 | 20 | 20 | 113 | 32.52 | 254.38 |
| 12 | 1.00 | 32 | 27 | 27 | 162 | 22.16 | 222.82 |
| 13 | 1.00 | 4  | 12 | 15 | 15  | 41.23 | 212.62 |
| 14 | 1.00 | 22 | 25 | 27 | 146 | 30.14 | 178.70 |
| 15 | 1.00 | 19 | 24 | 26 | 111 | 29.13 | 194.42 |
| 16 | 1.00 | 12 | 21 | 25 | 58  | 24.54 | 200.31 |
| 17 | 1.00 | 23 | 29 | 32 | 311 | 19.29 | 113.10 |
| 18 | 1.00 | 25 | 30 | 33 | 191 | 21.40 | 159.03 |
| 19 | 1.00 | 21 | 14 | 13 | 85  | 33.91 | 278.31 |
| 20 | 1.00 | 8  | 12 | 14 | 55  | 29.61 | 165.77 |
| 21 | 1.00 | 5  | 13 | 16 | 26  | 38.79 | 175.19 |
| 22 | 1.00 | 6  | 16 | 20 | 22  | 41.37 | 226.33 |
| 23 | 1.00 | 3  | 15 | 19 | 5   | 49.12 | 241.10 |
| 24 | 1.00 | 14 | 12 | 12 | 60  | 18.95 | 253.83 |
| 25 | 1.00 | 7  | 12 | 14 | 29  | 22.51 | 232.26 |
| 26 | 1.00 | 7  | 7  | 7  | 45  | 14.67 | 194.29 |
| 27 | 1.00 | 2  | 10 | 13 | 5   | 37.45 | 194.95 |
| 28 | 1.00 | 5  | 16 | 20 | 19  | 36.80 | 204.89 |
| 29 | 1.00 | 8  | 18 | 21 | 38  | 37.41 | 200.29 |
| 30 | 1.00 | 5  | 13 | 16 | 22  | 28.80 | 198.06 |
| 31 | 1.00 | 10 | 19 | 23 | 50  | 37.44 | 198.51 |
| 32 | 1.00 | 7  | 10 | 11 | 39  | 31.20 | 191.93 |
| 33 | 1.00 | 3  | 18 | 23 | 5   | 32.75 | 189.12 |
| 34 | 1.00 | 6  | 9  | 10 | 28  | 20.60 | 217.54 |
| 35 | 1.00 | 6  | 18 | 22 | 22  | 44.61 | 222.17 |
| 36 | 1.00 | 6  | 19 | 24 | 20  | 51.58 | 222.51 |
| 37 | 1.00 | 8  | 14 | 16 | 32  | 34.58 | 250.92 |
| 38 | 1.00 | 7  | 6  | 6  | 36  | 39.72 | 218.67 |
| 39 | 1.00 | 5  | 13 | 16 | 18  | 31.30 | 233.14 |
| 40 | 1.00 | 7  | 13 | 15 | 27  | 38.68 | 244.18 |
| 41 | 1.00 | 6  | 17 | 21 | 23  | 29.62 | 213.31 |
| 42 | 1.00 | 7  | 15 | 18 | 33  | 39.98 | 202.88 |
| 43 | 1.00 | 3  | 21 | 27 | 3   | 56.84 | 192.25 |
| 44 | 1.00 | 14 | 10 | 9  | 69  | 23.14 | 233.92 |
| 45 | 1.00 | 5  | 14 | 18 | 20  | 26.65 | 186.64 |
| 46 | 1.00 | 7  | 9  | 10 | 38  | 26.18 | 208.32 |
| 47 | 1.00 | 12 | 14 | 15 | 65  | 30.00 | 203.71 |
| 48 | 1.00 | 5  | 14 | 17 | 15  | 50.39 | 246.61 |
| 49 | 1.00 | 2  | 15 | 20 | 1   | 35.64 | 163.70 |
| 50 | 1.00 | 5  | 12 | 15 | 21  | 45.46 | 209.95 |
| 51 | 1.00 | 8  | 17 | 20 | 28  | 28.92 | 274.20 |
| 52 | 1.00 | 5  | 11 | 13 | 18  | 34.71 | 242.34 |
| 53 | 1.00 | 11 | 17 | 20 | 41  | 32.85 | 259.33 |
| 54 | 1.00 | 9  | 9  | 10 | 37  | 31.74 | 249.69 |
| 55 | 1.00 | 4  | 5  | 6  | 15  | 30.41 | 252.49 |
| 56 | 1.00 | 11 | 13 | 14 | 42  | 33.70 | 272.15 |
| 57 | 1.00 | 6  | 15 | 18 | 19  | 41.39 | 261.77 |
| 58 | 1.00 | 8  | 11 | 12 | 39  | 40.00 | 214.23 |
| 59 | 1.00 | 8  | 16 | 18 | 28  | 43.20 | 273.90 |
| 60 | 1.00 | 16 | 17 | 18 | 58  | 37.72 | 287.56 |
| 61 | 1.00 | 5  | 17 | 21 | 10  | 38.59 | 296.03 |
| 62 | 1.00 | 6  | 10 | 12 | 30  | 33.91 | 205.11 |
| 63 | 1.00 | 4  | 18 | 22 | 8   | 40.20 | 257.22 |
| 64 | 1.00 | 4  | 11 | 13 | 13  | 41.89 | 246.21 |
| 65 | 1.00 | 6  | 12 | 14 | 24  | 40.93 | 250.51 |
| 66 | 1.00 | 5  | 9  | 10 | 18  | 39.09 | 267.10 |
| 67 | 1.00 | 6  | 17 | 20 | 18  | 44.70 | 286.35 |
| 68 | 1.00 | 4  | 16 | 20 | 8   | 41.01 | 248.77 |
| 69 | 1.00 | 2  | 16 | 20 | 0   | 42.35 | 222.50 |
| 70 | 1.00 | 6  | 14 | 17 | 19  | 54.49 | 245.50 |
| 71 | 1.00 | 5  | 15 | 19 | 17  | 41.77 | 223.99 |
| 72 | 1.00 | 8  | 18 | 22 | 25  | 52.41 | 254.44 |

bottom shelf  
cont.

OK  
5 Mar 2020

middle  
shelf

Shelves 1 & 5

|    |      |   |    |    |   |       |        |                       |
|----|------|---|----|----|---|-------|--------|-----------------------|
| 73 | 1.00 | 2 | 20 | 26 | 0 | 44.21 | 184.45 | - shelves [e.g. cond. |
|----|------|---|----|----|---|-------|--------|-----------------------|

at

5 Mar 2020

# General Survey Map

Date/Time: 18 May 2020 10:40 Location: S-6 Freezer Surveyed by (Initials/Date): RA 18 May 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☐ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☒ Other \_\_\_\_\_ Decommission

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                                 | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                     |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DP</u> ID #: <u>MTR-320</u>                                                                      | Model: <u>Model 3</u> ID #: <u>MTR-100</u>                                                                                          |
| Calibration Due: <u>9 May 2020</u>                                                                          | Calibration Due: <u>13 Dec 2020</u>                                                                                                 |
| Background: <u>5.9</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr | Background: <u>1.7</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                  |
| Probe: <input type="checkbox"/> _____                                                                       | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92) |
|                                                                                                             | <input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____                                                    |

MAP LEGEND: ↗ = Radiation survey # = Contamination survey 1 = Wipe

Wipe results (dpm/100 cm<sup>2</sup>)

1. 2220
2. 2220
3. 2220
4. 2220
5. 2220
6. 2220
7. 2220
8. 2220
9. 2220
10. 2220
11. 2220
12. 2220
13. 2220
14. 2220
15. 2220
16. 2220
17. 2220
18. 2220
19. 2220
20. 2220
21. 2220
22. 2220
23. 2220
24. 2220
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

Additional Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 18 May 2020 11:00 Location: S-6 Freezer Surveyed by (Initials/Date): QA 18 May 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☐ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Circle one) ☒ Other \_\_\_\_\_ Decommission (Month) (Year)

| Radiation Surveys ( <input type="checkbox"/> Not performed)                                                 | Contamination Surveys ( <input type="checkbox"/> Not performed)                                                                     |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Model: <u>9DP</u> ID #: <u>MTR-320</u>                                                                      | Model: <u>Model 3</u> ID #: <u>MTR-100</u>                                                                                          |
| Calibration Due: <u>9 May 2020</u>                                                                          | Calibration Due: <u>13 Dec 2020</u>                                                                                                 |
| Background: <u>5.1</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr | Background: <u>10</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm                                   |
| Probe: <input type="checkbox"/> _____                                                                       | Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92) |
|                                                                                                             | <input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____                                                    |

MAP LEGEND: ↑ = Radiation survey # = Contamination survey 1 = Wipe

Wipe results (dpm/100 cm<sup>2</sup>)

1. 1220
2. 1220
3. 1220
4. 1220
5. 1220
6. 1220
7. 1220
8. 1220
9. 1220
10. 1220
11. 1220
12. 1220
13. 1220
14. 1220
15. 1220
16. 1220
17. 1220
18. 1220
19. 1220
20. 1220
21. 1220
22. 1220
23. 1220
24. 1220
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

Additional Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Note: Releasing an item as non-rad must be done with a contamination probe.

# Assay Definition-

## Assay Description:

Assay Type: DPM (Dual)

Report Name: Report1

Output Data Path: C:\Packard\Tricarb\Results\

Raw Results Path: C:\Packard\Tricarb\Results\A\_Hamm\3H\_14C\_UG\20200318\_1538\20200318\_1538.results

Assay File Name: C:\Packard\TriCarb\Assays\3H\_14C\_UG.lsa

## Count Conditions-

Nuclide: 3H-14C

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s%

Pre-Count Delay (min): 0.00

Quench Sets:

Low Energy: 3H Ultima Gold

Mid Energy: 14C Ultima Gold

Count Time (min): 1.00

Count Mode: Normal

Assay Count Cycles: 1

#Vials/Sample: 1

Repeat Sample Count: 1

Calculate % Reference: Off

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: Off

| Regions | LL   | UL    |
|---------|------|-------|
| A       | 0.0  | 12.0  |
| B       | 12.0 | 156.0 |
| C       | 0.0  | 0.0   |

## Count Corrections-

Static Controller: On

Luminescence Correction: Off

Colored Samples: Off

Heterogeneity Monitor: n/a

Coincidence Time (nsec): 18

Delay Before Burst (nsec): 75

## Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---------|-----------|-------|----------------|----------------|
| A       |           |       |                |                |
| B       |           |       |                |                |
| C       |           |       |                |                |

## Cycle 1 Results

| S# | DPM1 | DPM2 | Count | Time | CPMA | CPMB  | SIS    | tSIE   | MESSAGES |
|----|------|------|-------|------|------|-------|--------|--------|----------|
| 1  | 18   | 17   | 1.00  | 10   | 15   | 82.02 | 597.06 | 597.06 | -blank   |
| 2  | 12   | 21   | 1.00  | 4    | 17   | 46.35 | 236.07 | 236.07 |          |
| 3  | 7    | 26   | 1.00  | 4    | 21   | 59.10 | 245.97 | 245.97 |          |
| 4  | 0    | 18   | 1.00  | 0    | 14   | 78.53 | 275.63 | 275.63 |          |
| 5  | 12   | 23   | 1.00  | 5    | 19   | 59.45 | 271.83 | 271.83 |          |
| 6  | 22   | 21   | 1.00  | 8    | 18   | 44.75 | 316.06 | 316.06 |          |
| 7  | 16   | 17   | 1.00  | 5    | 14   | 47.01 | 255.62 | 255.62 |          |
| 8  | 16   | 14   | 1.00  | 5    | 12   | 40.46 | 268.60 | 268.60 |          |
| 9  | 9    | 16   | 1.00  | 4    | 13   | 62.08 | 308.88 | 308.88 |          |
| 10 | 5    | 11   | 1.00  | 2    | 9    | 33.92 | 233.03 | 233.03 |          |

Ahm

18 Mar 2020

A+P  
shelf

# General Survey Map

Date/Time: 3 Mar 2020 14:35 Location: S-6 Freezer Door Surveyed by (Initials/Date): ALH 3 Mar 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

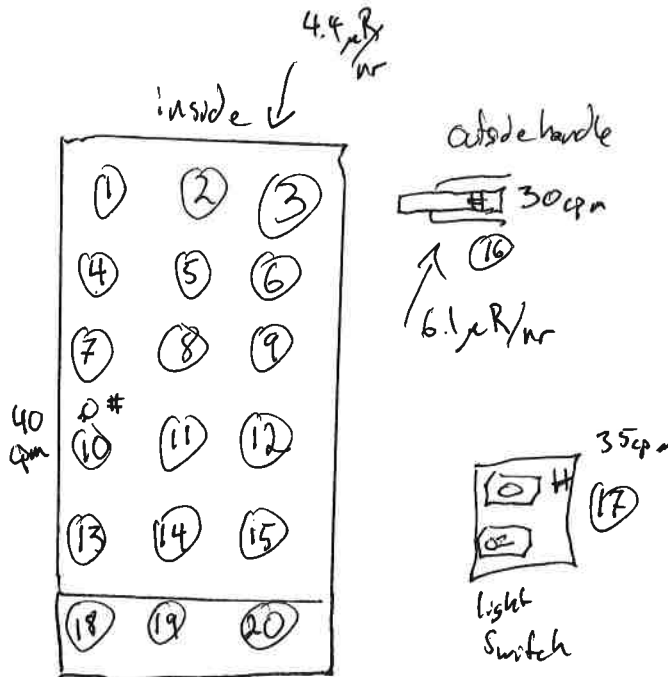
Reason:

☐ Receipt of RAM ☐ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☒ Other Decommission

|                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Radiation Surveys</b> ( <input type="checkbox"/> Not performed)<br>Model: <u>9DP</u> ID #: <u>MTR-320</u><br>Calibration Due: <u>9 May 2020</u><br>Background: <u>3.0</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr<br>Probe: <input type="checkbox"/> _____ | <b>Contamination Surveys</b> ( <input type="checkbox"/> Not performed)<br>Model: <u>Model 3</u> ID #: <u>MTR-100</u><br>Calibration Due: <u>13 Dec 2020</u><br>Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm<br>Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92)<br><input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____ |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Wipe results (dpm/100 cm<sup>2</sup>)

1. 4220
2. 4220
3. 4220
4. 4220
5. 4220
6. 4220
7. 4220
8. 4220
9. 4220
10. 4220
11. 4220
12. 4220
13. 4220
14. 4220
15. 4220
16. 4220
17. 4220
18. 4220
19. 4220
20. 4220
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_



MAP LEGEND: ↗ = Radiation survey # = Contamination survey 1 = Wipe

Additional Comments: wipes 1-15, 18-20 are 1 ft<sup>2</sup> area

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

Date/Time: 3 Mar 2020 15:00 Location: S-6 Freezer, Shelving Surveyed by (Initials/Date): QAL 3 Mar 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

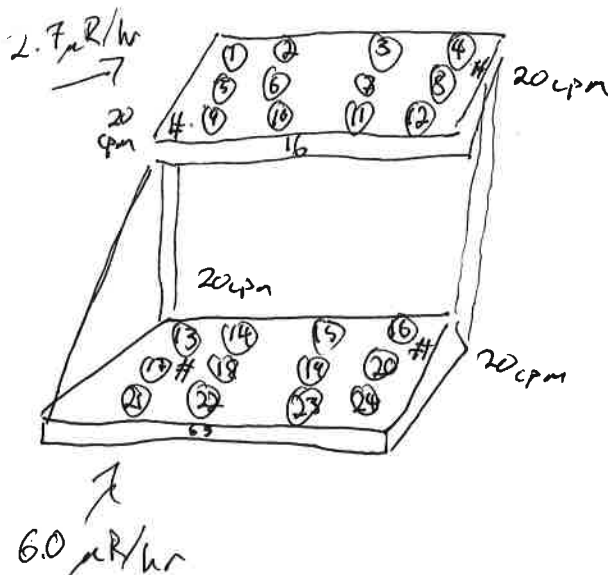
Reason:

☐ Receipt of RAM ☐ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_ (Month) (Year)  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☒ Other Decommission

|                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Radiation Surveys</b> ( <input type="checkbox"/> Not performed)<br>Model: <u>1DP</u> ID #: <u>MTR-320</u><br>Calibration Due: <u>9 May 2020</u><br>Background: <u>3.0</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr<br>Probe: <input type="checkbox"/> _____ | <b>Contamination Surveys</b> ( <input type="checkbox"/> Not performed)<br>Model: <u>Model 3</u> ID #: <u>MTR-100</u><br>Calibration Due: <u>13 Dec 2020</u><br>Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm<br>Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92)<br><input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____ |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Wipe results (dpm/100 cm<sup>2</sup>)

1. 220
2. 220
3. 220
4. 220
5. 220
6. 220
7. 220
8. 220
9. 220
10. 220
11. 220
12. 220
13. 220
14. 220
15. 220
16. 220
17. 220
18. 220
19. 220
20. 220
21. 220
22. 220
23. 220
24. 220
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_



MAP LEGEND:  $\nearrow$  = Radiation survey # = Contamination survey 1 = Wipe

Additional Comments: shelves 63 + 16 1 ft<sup>2</sup> wipes

Note: Releasing an item as non-rad must be done with a contamination probe.

# General Survey Map

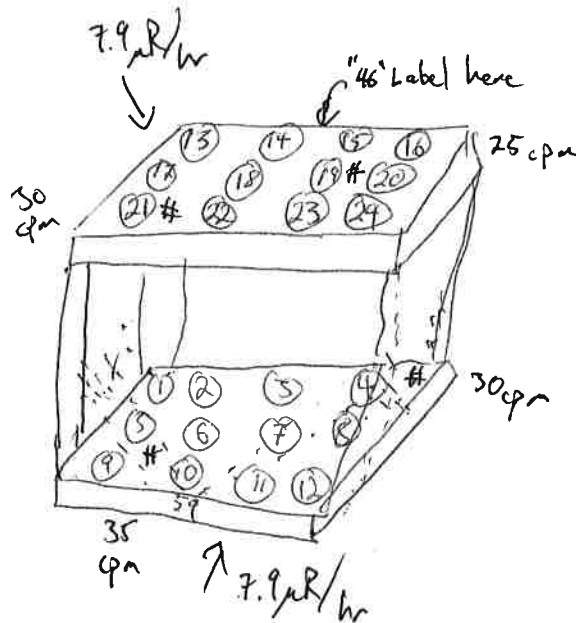
Date/Time: 3 Mar 2020 15:30 Location: S-6 Freezer Surveyed by (Initials/Date): alt 3 Mar 2020

Isotopes Expected: ☒ H-3 ☐ C-11 ☒ C-14 ☐ F-18 ☐ Cu-64 ☐ Zr-89 ☐ Tc-99m ☐ In-111 ☐ I-124 ☐ I-125  
☐ Pb-203 ☐ Ac-225 ☐ Other(specify): \_\_\_\_\_

Reason:

☐ Receipt of RAM ☐ Release as Non-Radioactive ☐ Daily Survey ☐ Weekly Survey ☐ Monthly Survey for \_\_\_\_\_  
☐ Quarterly Survey for 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Quarter of \_\_\_\_\_ (Year) ☒ Other Recommission (Month) (Year)

|                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Radiation Surveys</b> ( <input type="checkbox"/> Not performed)<br>Model: <u>9 DP</u> ID #: <u>MTR-320</u><br>Calibration Due: <u>9 May 2020</u><br>Background: <u>30</u> Units: <input type="checkbox"/> mR/hr <input checked="" type="checkbox"/> $\mu$ R/hr<br>Probe: <input type="checkbox"/> _____ | <b>Contamination Surveys</b> ( <input type="checkbox"/> Not performed)<br>Model: <u>Model 3</u> ID #: <u>MTR-100</u><br>Calibration Due: <u>13 Dec 2020</u><br>Background: <u>30</u> Units: <input checked="" type="checkbox"/> cpm <input type="checkbox"/> dpm<br>Probe: <input type="checkbox"/> Gamma (44-2) <input checked="" type="checkbox"/> Beta (44-9) <input type="checkbox"/> Alpha (43-92)<br><input type="checkbox"/> Low-E Gamma (44-3) <input type="checkbox"/> Other _____ |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



Wipe results (dpm/100 cm<sup>2</sup>)

1. 6220
2. 6220
3. 6220
4. 6220
5. 6220
6. 6220
7. 6220
8. 6220
9. 6220
10. 6220
11. 6220
12. 6220
13. 6220
14. 6220
15. 6220
16. 6220
17. 6220
18. 6220
19. 6220
20. 6220
21. 6220
22. 6220
23. 6220
24. 6220
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_

MAP LEGEND:  $\nearrow$  = Radiation survey # = Contamination survey 1 = Wipe

Additional Comments: Shelves 59 & 46 1 ft<sup>2</sup> wiper

Note: Releasing an item as non-rad must be done with a contamination probe.

Protocol# 22 - 3H14C Wipe Test.lsa

User: a\_hamm

## S-6 Freezer Decommission

## Assay Definition-

## Assay Description:

Assay Type: DPM (Dual)

Report Name: Report1

Output Data Path: C:\Packard\Tricarb\Results\a\_hamm\3H14C Wipe Test\20200303\_1642

Raw Results Path: C:\Packard\Tricarb\Results\a\_hamm\3H14C Wipe Test\20200303\_1642\20200303\_1642.results

RTF File Name: C:\Packard\Tricarb\Results\a\_hamm\3H14C Wipe Test\20200303\_1642\Report1.rtf

Assay File Name: C:\Packard\TriCarb\Assays\3H14C Wipe Test.lsa

## Count Conditions-

Nuclide: 3H14C-UG

Quench Indicator: tSIE/AEC

External Std Terminator (sec): 0.5 2s%

Pre-Count Delay (min): 0.00

## Quench Sets:

Low Energy: 14C Ultima Gold

Mid Energy: 3H Ultima Gold

Count Time (min): 1.00

Count Mode: Normal

Assay Count Cycles: 1

Repeat Sample Count: 1

#Vials/Sample: 1

Calculate % Reference: Off

Background Subtract: Off

Low CPM Threshold: Off

2 Sigma % Terminator: Off

| Regions | LL   | UL    |
|---------|------|-------|
| A       | 0.0  | 12.0  |
| B       | 12.0 | 156.0 |
| C       | 0.0  | 0.0   |

## Count Corrections-

Static Controller: On

Luminescence Correction: Off

Colored Samples: Off

Heterogeneity Monitor: n/a

Coincidence Time (nsec): 18

Delay Before Burst (nsec): 75

## Half Life-

Half Life Correction: Off

| Regions | Half Life | Units | Reference Date | Reference Time |
|---------|-----------|-------|----------------|----------------|
| A       |           |       |                |                |
| B       |           |       |                |                |
| C       |           |       |                |                |

## Cycle 1 Results

| S# | Count | Time | CPMA | CPMB | DPM1 | DPM2 | SIS   | tSIE   | MESSAGES    |
|----|-------|------|------|------|------|------|-------|--------|-------------|
| 1  | 1.00  |      | 6    | 16   | 19   | 9    | 63.62 | 569.26 | - blank     |
| 2  | 1.00  |      | 23   | 33   | 37   | 86   | 27.24 | 264.65 |             |
| 3  | 1.00  |      | 21   | 19   | 19   | 138  | 20.54 | 183.18 |             |
| 4  | 1.00  |      | 55   | 19   | 14   | 196  | 16.68 | 324.55 |             |
| 5  | 1.00  |      | 25   | 21   | 22   | 72   | 35.08 | 373.52 | S-6         |
| 6  | 1.00  |      | 25   | 19   | 19   | 71   | 26.81 | 390.42 | Freezer Pan |
| 7  | 1.00  |      | 45   | 24   | 22   | 126  | 23.90 | 411.88 |             |
| 8  | 1.00  |      | 23   | 19   | 20   | 59   | 39.44 | 420.82 |             |
| 9  | 1.00  |      | 32   | 21   | 22   | 82   | 38.47 | 438.35 |             |

Protocol# 22 - 3H14C Wipe Test.lsa

User: a\_hamm

## S-6 Freezer Decommission

|    |      |    |    |    |     |       |        |
|----|------|----|----|----|-----|-------|--------|
| 10 | 1.00 | 37 | 26 | 27 | 93  | 34.97 | 450.32 |
| 11 | 1.00 | 20 | 19 | 20 | 51  | 37.64 | 440.42 |
| 12 | 1.00 | 18 | 16 | 17 | 44  | 49.09 | 444.60 |
| 13 | 1.00 | 18 | 20 | 22 | 41  | 55.54 | 470.27 |
| 14 | 1.00 | 26 | 16 | 16 | 73  | 24.99 | 400.39 |
| 15 | 1.00 | 36 | 21 | 21 | 96  | 43.41 | 427.31 |
| 16 | 1.00 | 14 | 17 | 19 | 33  | 36.42 | 448.29 |
| 17 | 1.00 | 9  | 12 | 13 | 26  | 42.84 | 347.65 |
| 18 | 1.00 | 10 | 11 | 12 | 25  | 34.28 | 411.83 |
| 19 | 1.00 | 14 | 15 | 16 | 40  | 33.07 | 360.77 |
| 20 | 1.00 | 19 | 16 | 17 | 57  | 36.43 | 357.09 |
| 21 | 1.00 | 17 | 20 | 22 | 48  | 39.28 | 368.82 |
| 22 | 1.00 | 19 | 34 | 40 | 102 | 30.84 | 195.72 |
| 23 | 1.00 | 5  | 12 | 14 | 27  | 24.97 | 186.28 |
| 24 | 1.00 | 7  | 15 | 18 | 30  | 38.81 | 218.55 |
| 25 | 1.00 | 5  | 21 | 27 | 18  | 33.83 | 183.41 |
| 26 | 1.00 | 7  | 22 | 27 | 24  | 33.73 | 216.29 |
| 27 | 1.00 | 7  | 8  | 9  | 29  | 32.47 | 254.18 |
| 28 | 1.00 | 10 | 14 | 17 | 67  | 29.69 | 166.97 |
| 29 | 1.00 | 9  | 8  | 9  | 37  | 20.82 | 258.22 |
| 30 | 1.00 | 16 | 14 | 14 | 69  | 21.45 | 251.69 |
| 31 | 1.00 | 15 | 13 | 13 | 61  | 33.48 | 266.80 |
| 32 | 1.00 | 17 | 17 | 18 | 89  | 24.34 | 211.14 |
| 33 | 1.00 | 3  | 15 | 19 | 9   | 24.61 | 172.96 |
| 34 | 1.00 | 3  | 21 | 28 | 11  | 31.97 | 138.60 |
| 35 | 1.00 | 10 | 18 | 21 | 39  | 40.58 | 243.47 |
| 36 | 1.00 | 5  | 9  | 11 | 39  | 27.86 | 148.34 |
| 37 | 1.00 | 5  | 14 | 17 | 18  | 35.94 | 221.46 |
| 38 | 1.00 | 5  | 15 | 20 | 25  | 41.01 | 150.21 |
| 39 | 1.00 | 3  | 7  | 9  | 15  | 43.66 | 188.70 |
| 40 | 1.00 | 8  | 15 | 18 | 35  | 36.60 | 222.07 |
| 41 | 1.00 | 2  | 15 | 19 | 0   | 66.04 | 257.67 |
| 42 | 1.00 | 7  | 18 | 23 | 28  | 37.78 | 204.97 |
| 43 | 1.00 | 3  | 9  | 12 | 7   | 21.13 | 244.58 |
| 44 | 1.00 | 5  | 6  | 7  | 18  | 61.79 | 292.38 |
| 45 | 1.00 | 8  | 15 | 18 | 28  | 29.06 | 243.39 |
| 46 | 1.00 | 6  | 15 | 18 | 23  | 42.76 | 239.45 |
| 47 | 1.00 | 6  | 11 | 13 | 20  | 27.99 | 258.15 |
| 48 | 1.00 | 15 | 15 | 15 | 58  | 33.97 | 283.80 |
| 49 | 1.00 | 12 | 13 | 14 | 41  | 33.29 | 300.03 |
| 50 | 1.00 | 6  | 18 | 22 | 17  | 45.14 | 264.66 |
| 51 | 1.00 | 8  | 14 | 16 | 27  | 39.40 | 283.29 |
| 52 | 1.00 | 3  | 10 | 12 | 9   | 52.41 | 243.41 |
| 53 | 1.00 | 5  | 8  | 9  | 21  | 36.51 | 233.40 |
| 54 | 1.00 | 4  | 13 | 16 | 12  | 52.45 | 241.98 |
| 55 | 1.00 | 8  | 17 | 20 | 26  | 36.43 | 261.30 |
| 56 | 1.00 | 11 | 22 | 26 | 51  | 40.59 | 206.95 |
| 57 | 1.00 | 8  | 12 | 14 | 42  | 25.12 | 202.50 |
| 58 | 1.00 | 1  | 13 | 19 | 0   | 32.90 | 132.44 |
| 59 | 1.00 | 5  | 8  | 9  | 18  | 17.10 | 267.66 |
| 60 | 1.00 | 10 | 25 | 29 | 35  | 46.02 | 250.86 |
| 61 | 1.00 | 4  | 22 | 28 | 7   | 44.08 | 225.12 |
| 62 | 1.00 | 2  | 11 | 14 | 5   | 44.88 | 186.38 |
| 63 | 1.00 | 6  | 13 | 16 | 34  | 37.46 | 170.92 |
| 64 | 1.00 | 1  | 19 | 24 | 0   | 53.93 | 226.24 |
| 65 | 1.00 | 7  | 13 | 15 | 22  | 49.56 | 293.41 |
| 66 | 1.00 | 4  | 12 | 15 | 11  | 38.82 | 266.40 |
| 67 | 1.00 | 7  | 14 | 18 | 31  | 28.62 | 198.82 |
| 68 | 1.00 | 4  | 12 | 15 | 15  | 31.30 | 212.86 |
| 69 | 1.00 | 7  | 11 | 13 | 25  | 37.90 | 274.21 |

S-6  
Freezer door  
Cont.Shelves  
16+63at  
5/4/2020Shelves  
59+46