



Maintenance Management Order

SUBJECT: PM Guidelines for Biohazard Detection System (BDS)

DATE: May 3, 2010

NO: MMO-046-10

TO: Maintenance Manager, BDS Offices
Plant Manager, BDS Offices
Area Offices

FILE CODE: 3B

ftra:mm04056ae

MAINTENANCE MANAGEMENT ORDER

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This Maintenance Management Order (MMO) provides Preventive Maintenance (PM) guidelines for the Biohazard Detection System (BDS). This PM guideline addresses only daily requirements. Preventive maintenance scheduled for other frequencies are performed by the vendor. The daily PM must be performed on the BDS cabinet prior to daily operations.

The minimum maintenance skill level to perform each task on the checklist is included in the Minimum Skill Level column. This does not preclude higher level employees from performing any of this work.

The workhours represented in this MMO reflect the maximum workhours required to maintain the equipment.

WARNING

The materials handled may contain chemicals or debris that could cause irritation to eyes and skin. Chemical proof goggles (with side shields), aprons, and rubber gloves must be worn when handling buffers, per USPS requirements.

BDS components are not inherently hazardous. However, some of the materials (buffer, other chemical testing substances, etc) used in operation of the system are potentially hazardous, if precautions are not taken during operation and maintenance. While cleaning parts of the BDS cabinet, or removing used sample cartridges, or waste materials, small amounts of waste fluids or buffer fluids may get on your skin. Be sure to keep your hands away from your eyes, nose, and mouth. Thoroughly wash your hands immediately if contact with any chemical substance occurs and after any maintenance. If the above fluids/chemical substance spill on your clothing, change into clean clothing and wash the contaminated clothing before wearing it again.

Observe the specific warnings in this MMO and the current Biohazard Detection System (BDS) Servicing Guide.

WARNING

Various products requiring Material Safety Data Sheets (MSDS) may be utilized during the performance of the procedures in this bulletin. Ensure the current MSDS for each product used is on file and available to all employees. When reordering such a product, it is suggested that current MSDS be requested. Refer to MSDS for appropriate personal protective equipment.

WARNING

The use of compressed or blown air is prohibited. When cleaning is required, an alternative cleaning method such as a HEPA filtered vacuum cleaner or a damp rag must be used in place of compressed or blown air. A lint-free cloth or brush may be used only on optical equipment when other cleaning methods can not be used.

Maintenance Managers are to use these preventive maintenance guidelines when preparing the route sheets for local maintenance personnel. It is the responsibility of each Maintenance Manager to ensure all WARNINGS, CAUTIONS, and NOTES are included with each applicable task as part of the preparation of any local route sheets.

For questions or comments concerning this bulletin contact the MTSC HelpDesk, either online at **MTSC>HELPDESK>Create/Update Tickets** or call (800) 366-4123.



Robert E. Albert
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Maintenance Policies and Programs

Attachments: 1. Summary, Workload Estimate for BDS
 2. Daily BDS Master Checklist

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ATTACHMENT 1

SUMMARY

WORKLOAD ESTIMATE

FOR

Biohazard Detection System

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BDS WITH SINGLE AFCS

	Routine Servicing (hrs/yr)	Repair* (hrs/yr)	Total Servicing & Repair Time (hrs/yr)	Nonproductive Time ** (hrs/yr)	Total Servicing Per Machine (hrs/yr)
5 Day	69.3	6.9	76.3	7.6	83.9
6 Day	83.2	8.3	91.5	9.2	100.7
7 Day	97.1	9.7	106.8	10.7	117.5

BDS WITH DUAL AFCS

	Routine Servicing (hrs/yr)	Repair* (hrs/yr)	Total Servicing & Repair Time (hrs/yr)	Nonproductive Time ** (hrs/yr)	Total Servicing Per Machine (hrs/yr)
5 Day	86.7	8.7	95.3	9.5	104.9
6 Day	104	10.4	114.4	11.4	125.8
7 Day	121.3	12.1	133.5	13.3	146.8

* Repair estimates based on 10% of servicing.

** Based on 10% of total servicing and repair.

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ATTACHMENT 2

BDS MASTER CHECKLIST

03-BDS-AA-001-M

DAILY

Time Totals:

Dual AFCS : 20 Minutes

Single AFCS : 16 Minutes

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U.S. Postal Service Maintenance Checklist		IDENTIFICATION									
		Work Code		Equipment Acronym			Class Code		Number		Type
		0	3	B	D	S		A	A	0	0
Equipment Nomenclature Biohazard Detection System		Equipment Model			Bulletin Filename MM04056AD			Frequency Daily			

Part or Component	Item No.	Task Statement and Instruction (Comply with all current safety precautions)	Est. Time Req'd	Min. Skill Level
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SAFETY STATEMENT

1. **COMPLY WITH ALL SAFETY PRECAUTIONS. Disconnect power and apply lockouts when required by this instruction. Refer to current local lockout procedures to properly shut down and lock out this machine.** 1 ALL

THE USE OF COMPRESSED OR BLOWN AIR IS PROHIBITED.

When cleaning is required, an alternative cleaning method such as a HEPA filtered vacuum cleaner or a damp rag must be used in place of compressed or blown air. A lint-free cloth or brush may be used on optical equipment only when other cleaning methods can not be used. Report safety deficiencies to your supervisor immediately upon detection.

Chemical proof goggles (with side shields), aprons, and rubber gloves must be worn when handling buffers, per USPS requirements. If you fail to comply, you could receive serious skin and/or eye irritation.

BDS Cabinet

2. **Start of day.** Perform start of day maintenance by performing the following steps: 1 9
1. At the Login Screen, enter your User ID and Password.
 2. Press the Submit button. The main maintenance menu is now displayed.
3. **Check machine alarms.** On the main maintenance menu, press the Daily Maintenance button, the Check Machine Alarms touch screen is displayed. 1 9
1. On the Check Machine Alarms touch-screen, verify that no active alarms are currently present.
 2. Resolve any active alarms.
 3. Press the NEXT button. The Check Buffer Volumes screen appears.
4. **Check buffer volumes.** If Check Buffer Volumes screen shows any buffer to be less than acceptable percentages (12% for Buffer 1; 21% for Buffer 2; 14.5% for Buffer 3) replace buffer bottle by performing the following steps: 3 9

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WARNING

Chemical proof goggles (with side shields), aprons, and rubber gloves must be worn when handling buffers, per USPS requirements. Failure to comply could result in irritation to the eyes and skin. Wear eye protection and gloves while performing the following steps. Should eye or skin contact occur, flush with water, preferably for a minimum of 15 minutes, and report the incident to the supervisor and the site medical office.

NOTE

When you first log in to the BDS cabinet, you will have 30 minutes to open the cabinet doors and replace the fluids, without generating an Authorization alarm. If additional time is required, press the Open Cabinet Door button to reset 30-minute timer.

NOTE

Buffer bottles must be replaced following a BDS cabinet swap-out, regardless of fluid level indications.

1. Press the Replace Fluids button. The Replace Fluids screen appears.
2. Don personal protective gear (apron, eye protection, and gloves).
3. Obtain required replacement buffer bottle(s).
4. Press E-Stop button on the BDS cabinet.
5. Unlock and open right-side cabinet door.
6. Remove empty buffer bottle from buffer tray.
7. Disconnect quick-connect fitting.
8. Swap the caps of the empty buffer bottle and the full buffer bottle.
9. Insert replacement buffer bottle in tray and connect

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quick-connect fitting.

10. Dispose of removed empty buffer bottle(s) in accordance with local safety and waste disposal regulations.
11. Visually check waste container and empty if it is 75% or more full.
12. Visually check water box. Verify bag has not collapsed over nozzle. Replace water box if almost empty.
13. Close and lock doors.
14. Reset E-Stop button on the BDS cabinet.

NOTE

It is important to press applicable check box(es) in step 15 so an accurate account of the fluid levels is maintained.

15. Record replacement in maintenance log book.
 16. Press applicable check box(es) relative to the buffer bottle(s) and/or water.
 17. Enter the new buffer lot numbers. Press Keyboard button to use keyboard.
 18. Press Next button.
5. **Prime fluid lines.** 2 9

NOTE

The Prime Fluid Lines screen will indicate READY the first time this screen appears following a computer reboot. If the prime fluid lines procedure is run a second time during the same computer boot cycle, the screen will indicate the date and time of the previous occurrence of line priming.

NOTE

The Cartridge Handling System (CHS), blower module, and fluidics and control module work together to prime and rinse the lines.

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1. Press the START button on the touch screen. Observe the left-hand side of the touch screen. Each routine will appear in block letters on the touch screen as it is being accomplished.

NOTE

If preparing more than one BDS for operations, start daily procedures on other cabinets while lines are priming, or perform inspection tasks in item 7 or 8, and check boxes after priming is complete and cartridges have been replaced.

2. When all prime and rinse routines have been completed as indicated by the message on the screen press the NEXT >> button. The Replace Cartridges screen is displayed.
6. **Replace cartridges.** Replace cartridges by performing the following steps:
 1. On the Replace Cartridges screen, press the Unlock Drawer button, and open the drawer in the center of the left-hand BDS cabinet door.
 2. Remove and retain used cartridges for 24 hours, then dispose of them in accordance with local safety and waste disposal regulations. Keep cartridges upright to avoid drainage.
 3. Rotate any unused cartridges to the lowest numbered position. This ensures the First In-First Out (FIFO) inventory requirement is met.
 4. Insert new cartridges into the remaining open positions with the cartridges barcodes facing front. Inspect cartridges to ensure tabs are flat, not bent or damaged. Inspect cartridge label to verify it is fully adhered to the cartridge. Press the Unlock Drawer button and close the drawer.
 5. Press Unlock Drawer button, and close the drawer.

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NOTE

The automated sequence will inventory all 10 positions and record the serial numbers contained within the barcode label of each cartridge.

If the barcode for a cartridge does not appear on the screen, unlock and open the drawer, remove the cartridge, and verify that the label is not smudged or dirty.

6. Verify that all new cartridges show up as green on the screen and that cartridge barcode numbers are shown beneath the cartridge. Replace any cartridge that cannot be read.
7. When the automated sequence completes inventory of all 10 positions, press the Next >> button. The Check Collection Hood and Tubing screen appears.
7. **Check collection hood and tubing.** Item 7 is for single AFCS feeding BDS, if dual AFCS go to item 8. See following graphic. 3 9

Perform the following steps:

1. Inspect hood for structural integrity. Check there are

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- no cracks, dents, holes, or loose or broken hinges.
- 2. Verify that the four channel walls are in place.
- 3. Ensure that the rubber seals on the four channel walls and the LED bank are in place with no tears or gouges.
- 4. Press the last two check boxes. If priming is taking place, wait until after cartridges have been replaced to check two remaining boxes.
- 5. Inspect inlet hoses between MPE interface hood, cyclonic filter, and BDS cabinet for signs of kinks, binding, or excessive deterioration, and verify they are secure.

NOTE

If a hose breaks between either the BDS cabinet and cyclonic filter, or the cyclonic filter and the hood, contact the BDS Support Hotline.

- 6. Verify differential pressure hose between MPE interface hood and pressure sensor is securely fastened and shows no sign of kinks, binding, or excessive deterioration.
- 7. Press the first check box on the Check Collection Hood and Tubing screen. If priming is taking place, wait until after cartridges have been replaced.
- 8. Verify tubing is unobstructed, and press the second check box on the screen. If priming is taking place wait until after cartridges have been replaced to press second check box.
- 9. Inspect BDS-to-MPE interface cable for nicks, cuts, scrapes, loose wires, loose connectors, and signs of excessive wear or damage.
- 10. Verify that AFCS jumpers are removed and the BDS-to-MPE Interface cable connections are secure.
- 11. Verify all hose connections between BDS cabinet and MPE are secure and press the third check box. If priming is taking place, wait until after cartridges have been replaced to press third check box.

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NOTE

The Finish button will become active after all five check boxes have been pressed.

12. Press the Finish button.

8. **Check collection hoods and tubing for dual AFCS configuration.** This item is only for dual AFCS feeding BDS, skip this if single AFCS and go to item 9. See graphic in item 7. 7 9

Perform the following steps on AFCS without BDS cabinet (far AFCS):

1. Inspect hood for structural integrity. Check that there are no cracks, dents, or loose or broken hinges.
2. Verify that the four channel walls are in place.
3. Ensure that the rubber seals on the four channel walls and the LED Bank are in place with no tears or gouges.
4. Inspect inlet hoses between MPE interface hood, cyclonic filter, and to overhead hose to tube for signs of kinks, binding, or excessive deterioration, and verify they are secure.

NOTE

If a hose breaks contact the BDS Support Hotline.

5. Verify differential pressure hose between MPE interface hood and pressure sensor is securely fastened and shows no sign of kinks, binding, or excessive deterioration.
6. Inspect BDS-to-MPE interface cable for nicks, cuts, scrapes, loose wires, loose connectors, and signs of excessive wear or damage.
7. Verify that AFCS jumpers are removed and the BDS-to-MPE interface cable connections are secure.

Perform the following steps on AFCS with BDS cabinet (near AFCS):

8. Inspect hood for structural integrity. Check there are

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- no cracks, dents, holes, or loose or broken hinges.
- 9. Verify that the four channel walls are in place.
- 10. Ensure the rubber seals on the four channel walls and LED bank are in place with no tears or gouges.
- 11. Press the last two check boxes. If priming is taking place, wait until after cartridges have been replaced to press the two remaining check boxes.
- 12. Inspect inlet hoses between MPE interface hood, cyclonic filter, and BDS cabinet for signs of kinks, binding, or excessive deterioration, and verify they are secure.

NOTE

If a hose breaks between either the BDS cabinet and cyclonic filter, or the cyclonic filter and the hood, contact the BDS Support Hotline.

- 13. Verify differential pressure hose between MPE interface hood and pressure sensor is securely fastened and shows no sign of kinks, binding, or excessive deterioration.
- 14. Press the first check box on the Check Collection Hood and Tubing screen. If priming is taking place wait, until after cartridges have been replaced to press first check box.
- 15. Verify tubing is unobstructed and press the second check box on the screen. If priming is taking place, wait until after cartridges have been replaced to press second check box.
- 16. Inspect BDS-to-MPE interface cable for nicks, cuts, scrapes, loose wires, loose connectors, and signs of excessive wear or damage.
- 17. Verify that AFCS jumpers are removed and the BDS-to-MPE interface cable connections are secure.
- 18. Verify all hose connections between BDS cabinet and MPE are secure and press the third check box. If priming is taking place, wait until after cartridges have been replaced to press third check box.

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NOTE

The Finish button will become active after all five check boxes have been pressed.

19. Press the Finish button.

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| 9. | Maintenance complete. After pressing the Finish button in the above step, the Maintenance Complete touch screen appears with the message, "YOU HAVE NOW COMPLETED MAINTENANCE. WOULD YOU LIKE TO LOGOUT OF THE SYSTEM OR RETURN TO THE MAIN MAINTENANCE SCREEN". Perform the following steps: | 2 | 9 |
| | 1. Press the HOME button. The Main Maintenance screen is displayed. | | |
| | 2. Record completion of Start of Day maintenance in the Equipment Log Book. | | |
| | 3. Press the LOGOUT button. | | |

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| CLEAN UP | 10. Clean up. Ensure all tools, rags, and etc. are removed from the work area. Report all deficiencies to your supervisor. | 1 | 9 |
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