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| ***Insert Laboratory Specific Name Here*** |
| **NextSeq Equipment Maintenance SOP** |

1. **Purpose**

This procedure provides instructions for the maintenance of the Illumina NextSeq to ensure the equipment functions according to established criteria to produce the quality of products and services required by the *“insert laboratory name here”*.

1. **Scope**

This document applies to Illumina NextSeqused within the *(Your Lab / Branch, etc.)* for DNA or RNA sequencing.

1. **Related Documents**

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| **Title** | **Document Control Number** |
| NextSeq Equipment Maintenance Log |  |

1. **Definitions**

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| **Term** | **Definition** |
| Preventive maintenance | Systematic inspection, detection, correction, and prevention of incipient failures for the purpose of preventing actual or major failures. |

1. **Equipment / Materials**

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| --- | --- | --- |
| **Supply** | **Catalog Number** | **Procedure** |
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1. **Safety Precautions**
   * 1. Do not remove the outer panels from the instrument. There are no user-serviceable components inside. Operating the instrument with any of the panels removed creates potential exposure to line voltage and DC voltages
     2. Hot Surface Safety Warning: Do not operate the instrument with any of the panels removed
2. **Procedure**
   1. **Weekly Maintenance**
      1. **Cleaning**
         1. Cleaning should be performed weekly
         2. Using a Kimwipe, wipe the outer casing to remove dust. Do not touch the instrument if it is running.
         3. Record in *laboratory cleaning/maintenance log.*
      2. **Quick Wash**
         1. A Quick Wash must be completed if there are no plans to use the instrument within the next 14 days. Additionally, a quick wash must be completed every 14 days until the instrument is brought back into use.
         2. A quick wash must be completed to bring the instrument back into use after having been shut down.
         3. **Perform Wash**

* Combine the following volumes to result in a 0.05% Tween 20 wash solution:
* 100% Tween 20 (20 ɥl)
* Laboratory-grade water (40 ml)
* Add 40 ml wash solution to the center reservoir of the buffer wash cartridge
* Select **Perform Wash**, and then select **Quick Wash**
* If a used flow cell is not present, load a used flow cell. Select **Load**, and then select **Next**
* Remove the spend reagents container and discard the contents in accordance with applicable standards
* Slide the empty spent reagents container into the buffer compartment until it stops
* Remove the used buffer cartridge from the previous run, if present
* Load the buffer wash cartridge containing wash solution
* Remove the used reagent cartridge from the previous run, if present
* Load the reagent wash cartridge
* Select **Next**, the prewash check begins automatically
* Select **Start** to begin the wash
* When the wash is complete, select **Home**
* After the wash, the sippers remain in the down position to prevent air from entering the system. Leave the cartridges in place until the next run
  1. **Every 6 months Maintenance**
     1. **Replace the Air Filter** 
        1. The software prompts for an air filter change every six months from when first time setup was started
        2. Record in *laboratory cleaning/maintenance log*
  2. **Yearly Preventive Maintenance** 
     1. Illumina recommends that you schedule a preventive maintenance service each year. If you are not under a service contract, contact your Territory Account Manager or Illumina Technical Support to arrange for a billable preventive maintenance service.
  3. **As Needed**
     1. **Clear Hard Drive Space**
     2. **Software Updates**

The system is configured to download software updates automatically or manually

* + - 1. Automatic Updates – updates are automatically downloaded from BaseSpace Sequence Hub for you to install. This option requires an internet connection, but not a BaseSpace Sequence Hub account
      2. Manual Updates – Updates are manually downloaded from the web, saved locally or to a portable device, and installed from the saved location. This option does not require an internet connection

1. **Repair /Service / Unscheduled Maintenance**

*NOTE: if your laboratory has an equipment troubleshooting or Out of Service SOP, delete the text below, include a reference to the SOP, and add the SOP as a related document in Section 3.0.*

* + - 1. Place an “Out of Service (OOS)” form on the equipment.
      2. Document the problem on the *laboratory maintenance log*, stating date / time taken OOS, reason why the equipment was taken OOS, and initials / date of responsible individual.
      3. “Troubleshoot” source of the problem (sample, reagent, operator, equipment, etc.). (Refer to Illumina MiSeq System User Guide.)
      4. Call Manufacturer’s Technical Assistance, if needed. Record the technical support case number.
      5. Determine what repair / maintenance is to be performed when you call for service.
         * Equipment under warranty may require that repairs are completed by the manufacturer.
         * Is disinfection / decontamination required?
         * How is disinfection / decontamination performed? Define appropriate disinfectant, time required, recommended precautions, areas to be decontaminated, etc.
      6. Items sent to a manufacturer for repair and ultimately replaced must be reported to the responsible property office.
      7. Record in *laboratory maintenance log* and attach service report, if applicable.
      8. Place equipment back into service after verification / qualification completed.
      9. Maintain a history of maintenance / repair / service.

1. **References**
   1. Illumina NextSeq Sequencing System Guide Document #15046563 v06 June 2019
2. **Revision History**

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| **Rev #** | **DCR #** | **Change Summary** | **Date** |
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1. **Approval**

Reviewed By: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_