An AIP will be withdrawn from the FDA upon the request of an authorized agent of the affiliate. Files belonging to the withdrawn AIP are deleted entirely from storage, but the FDA retains a permanent record that the intellectual entity was ingested and withdrawn. The affiliate will receive a Withdrawal Report by email.

A common reason for withdrawal is to correct information in a previously submitted package. The existing AIP must be withdrawn, and a SIP containing the correct information submitted for Ingest.

AIPs may also be withdrawn on the initiative of the FDA, if it receives information that content has been archived in violation of copyright.

6. Reporting.

The FDA will provide periodic statistical reports to affiliates about their own use of the FDA. Ad hoc reporting will also be available upon request.

Preservation Strategies

Preservation strategies supported by the FDA are based on format transformation, that is, changing files formats to delay or accommodate format obsolescence. The FDA performs three kinds of transformations:

- Localization. If a file contains one or more links to other files (for example, an XML file containing a link to a schema definition), a localized version will be created if possible. The linked-to file will be located and downloaded into the AIP if it is not already contained in the SIP. A localized version of the original, linked-from file will be created in which the link is replaced by a reference to the name of the linked-to file in the AIP. The purpose of localization is to ensure that AIPs are complete and that references between files in the AIP can always be resolved.

- Normalization. If a file is in a format considered to be less than optimal for digital preservation a version of the file may be created in a more preservation-worthy format. In general, preferred formats are non-proprietary, well documented, and well understood by FDA staff. Normalized versions may not be equivalent to originals in appearance or functionality. For example, a PDF file will be normalized into a set of page-image TIFFs. In this case the appearance of the content is retained but functionality such as actionable hyperlinks is lost.

- Migration. If a file is in a format considered at risk of obsolescence, a version will be created in a format considered to be a reasonable successor to the original format. All effort will be made to retain the appearance and behaviors of the original version, although this can not always be guaranteed. The successor

format may be a higher version of the original format (for example, PDF 1.4 might be migrated to PDF 1.6) or it may be another format altogether.

The preservation strategies that will be implemented for any file format are documented in the Action Plan for the file format, available on the FDA website. Action plans are reviewed periodically and revised when appropriate.

All preservation strategies are applied at the time a SIP is ingested, as part of ingest processing. They are only applied to files receiving full preservation treatment, as specified by the affiliate in the *FCLA – Library Agreement* Appendix A. Localized, normalized and migrated versions of files contained in the SIP become part of the AIP.

If a file is designated as receiving full preservation treatment in Appendix A, but there is not yet an Action Plan for the file format, bit-level preservation will be carried out for the file until the time when full preservation becomes available. At that time, the AIP containing the file will be disseminated and re-ingested, causing the full preservation treatment to be applied.

Storage

All AIPs are stored on tapes in an IBM robotic tape library managed by Tivoli Storage Manager.

For every file in the AIP, three master copies are written. Two copies are stored at the UF Computing & Network Services facility in Gainesville (CNS) and one copy is stored at the Northwest Regional Data Center in Tallahassee (NWRDC).

The three master copies are treated as a single file by DAITSS, the repository software application underlying the FDA. This means that when any action is performed on a file, it must be successfully performed on all three copies to be considered complete. For example, a fixity check involves calculating a message digest over the bits of a file and comparing this to a previously stored message digest. For a fixity check to be complete, message digests must be calculated for each of the three master copies of the file and verified to match the stored message digest.

Security

Data security is ensured by a combination of physical security and cybersecurity.

The UF Computer Network Services (CNS) in Gainesville and the North West Regional Data Center (NWRDC) in Tallahassee are responsible for the physical security of computer tapes containing archived data, computer servers running the archive application, and other computer hardware necessary for the operation of the FDA.