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# ISSA Chapter Meeting

## How to Leverage the NSA to Improve You IT Asset Disposition

Tuesday, December 1st, 2020

**Allan Jenik**
President
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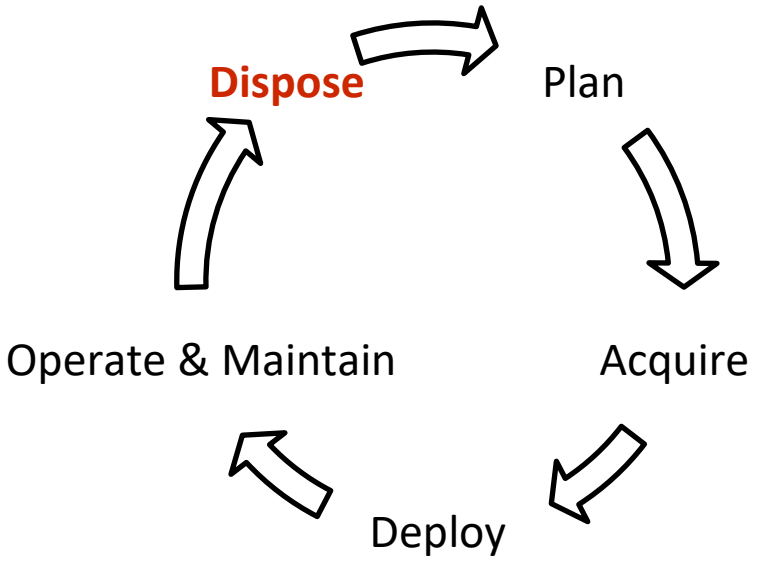
IT Asset Auditing, Recycling & Destruction

# Presentation Overview

- The NSA and NIST as a Resource
- Case Study
- Cell Phone Disposal
- Questions
- Tools to Help IT Managers

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# IT Management Challenge

Data Security

Environmental Risk

Disposal Cost

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# What is at Stake?

**“Negligent data center shutdowns bring $60 million fine for Morgan Stanley”**

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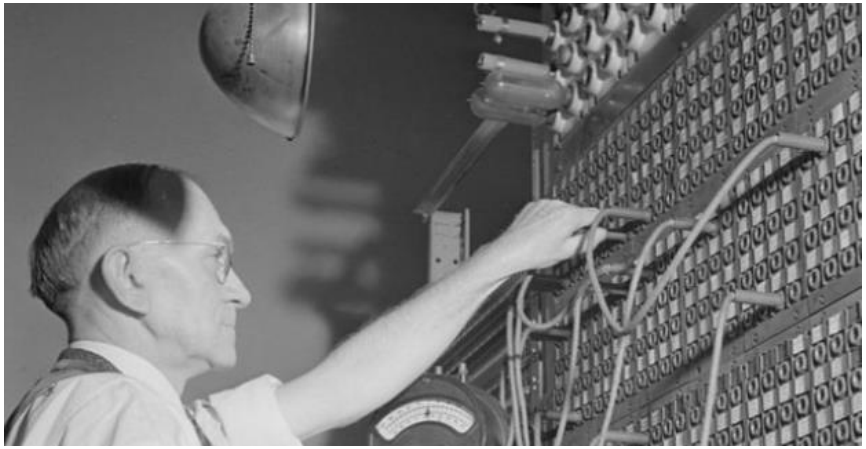
# The NSA: A Valuable Resource



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# NSA: Cybersecurity Advisories & Technical Guidance

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# NSA: CSDSR

HOME > RESOURCES > MEDIA DESTRUCTION GUIDANCE

## Center for Storage Device Sanitization Research

### Background

The Center for Storage Device Sanitization Research, CSDSR, guides the sanitization of information system (IS) storage devices. This web page provides resources for a vendor of storage device sanitization, the NSA/CSS Evaluated Products Lists (EPL) PDF, a Search function for the EPL, and contact information for The Center for Storage Device Sanitization Research. Here is a short video (In Development) that explains the responsibilities and duties of the Center for Storage Device Sanitization Research.

### Evaluated Products Lists

The NSA/CSS Evaluated Products Lists equipment that meets NSA/CSS specifications. These lists apply to all NSA/CSS elements and pertain to all IS storage devices utilized by NSA/CSS elements, contractors, and personnel.

**Policy:** For disposal or recycling per NSA/CSS Policy Statement 9-12, "NSA/CSS Storage Device Sanitization" (Reference a). Information stored on these devices may range from UNCLASSIFIED to TOP SECRET and may include compartmented, sensitive, or limited-distribution material.

### Evaluated Products List PDF

The CSDSR updates the EPL quarterly.

- NSA/CSS Storage Device Sanitization Manual Dated 19 December 2017
- NSA/CSS Evaluated Products List for Hard Disk Destruction Devices Dated September 2020
- NSA/CSS Evaluated Products List for Magnetic Degaussers Dated September 2020

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# Case Study:

You have been tasked to manage the secure disposition of the following assets:
-50 data center servers
-200 hard drives
-150 data storage tapes
- 30 Cell Phones

What are the steps you would take to ensure the proper disposition of the equipment?

# Case Study:

## NSA/CSS Storage Device Sanitization Manual

https://www.nsa.gov/Portals/70/documents/resources/everyone/media-destruction/PM9-12.pdf?ver=2019-05-16-075903-503

| Media Type | Methods of Destruction |
|---|---|
| Hard Disk Drives | Degaussing, Disintegration, Incineration |
| Solid State Drives/Cell Phones | Disintegration, Incineration, Power Removal, Strip Shredding |
| Magnetic Tapes | Degaussing, Incineration |

## NSA/CSS Evaluated Products List for Magnetic Degaussers

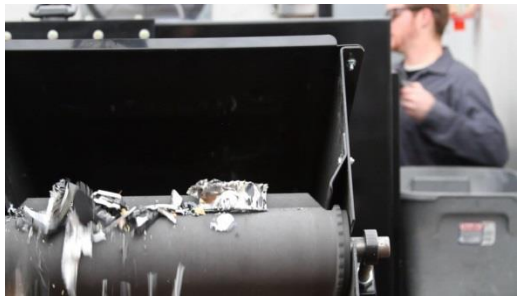
https://www.nsa.gov/Portals/70/documents/resources/everyone/media-destruction/NSAEPLMagneticDegaussersSeptember2020.PDF?ver=zunHRRm-VmtI-_c7KBEdjA%3d%3d

## NSA/CSS Evaluated Product List for Solid State Disintegrators

https://www.nsa.gov/Portals/70/documents/resources/everyone/media-destruction/NSAEPLSolidStateDisintegratorsSeptember2020.pdf?ver=oGP4SgkxujaW3gPUgoySVQ%3d%3d

# Destruction Methods

High Speed Shredding



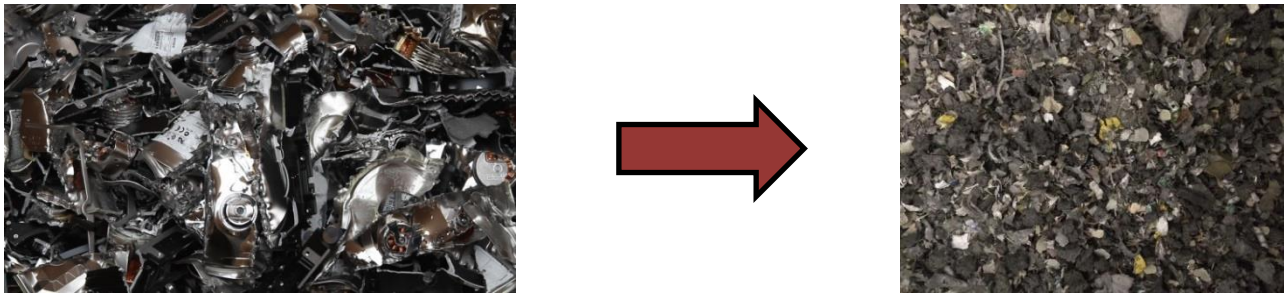
Micro Shredding

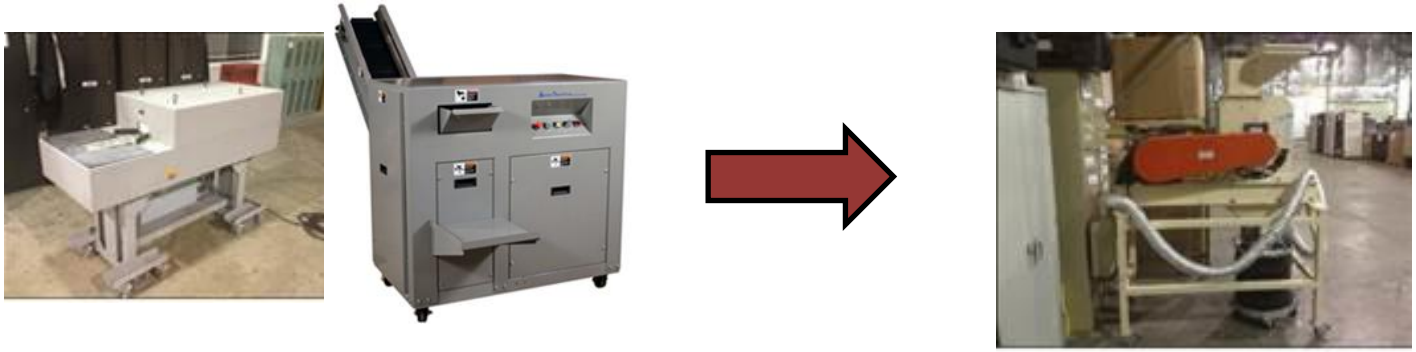
High Speed Degaussing

Incineration

Wiping

# Magnetic Platter Drives vs. SSDs





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# Inventory Tracking

Job Number: 1234

| Type | Method | Quantity | Cost | Total |
|---|---|---|---|---|
| Cell Phones | OS Shredding | 86 | $7.50 | $645 |
| Discs/Floppies | OS Shredding | 204 | $0.80 | $163.20 |
| Hard Drive | OS Shredding | 541 | $5.62 | $3,040.42 |
| Tape | OS Shredding | 196 | $1.00 | $196.00 |
| | | 1027 | | $4,044.62 |

| Type | Destruction Method | Quantity | Hard Drive Serial | Entry Date |
|---|---|---|---|---|
| Hard Drive | OS Shredding | 1 | ABC123 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC124 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC125 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC126 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC127 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC128 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC129 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC130 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC131 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC132 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC133 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC134 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC135 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC136 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC137 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC138 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC139 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC140 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC141 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC142 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC143 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC144 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC145 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC146 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC147 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC148 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC149 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC150 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC151 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC152 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC153 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC154 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC155 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC156 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC157 | 2/24/2012 0:00 |
| Hard Drive | OS Shredding | 1 | ABC158 | 2/24/2012 0:00 |

## Certificate of Destruction & Recycling

This Certificate acknowledges the receipt of items for electronics recycling and data destruction services. Securis guarantees that all material was destroyed and recycled by environmentally sound methods and NAID Certified standards. If available, please see the Inventory file for more details on each item.

**Company:** IT Security Company and Data Center

**Date of Service:** September 9, 2015 10:45 AM

**Destruction Type:** Shredding and Degaussing

**Job Number:** VA902887

**Corporate Officer:**

**Date:** 09/09/2015

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# Data Security: In House vs. Outsourced

High Equipment Volume

In House/
Outsource

In House

Low Security
Categorization

High Security
Categorization

Outsource

In House/
Outsource

Low Equipment Volume

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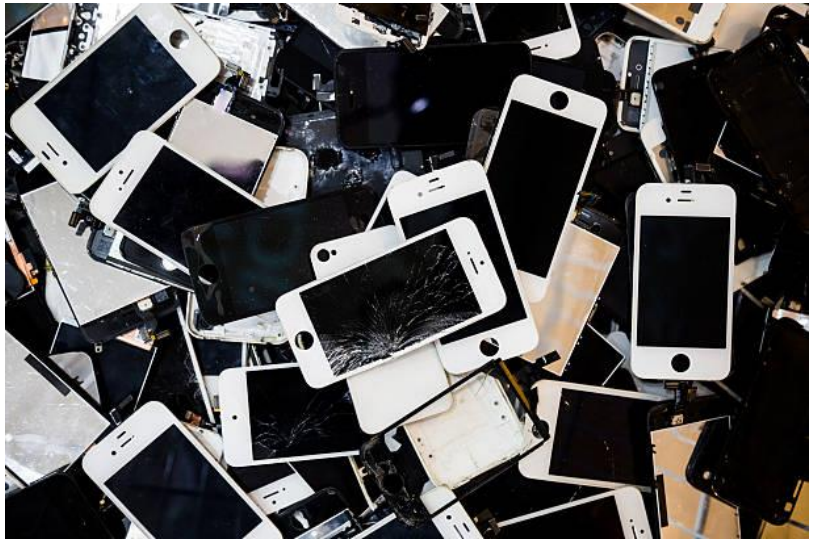
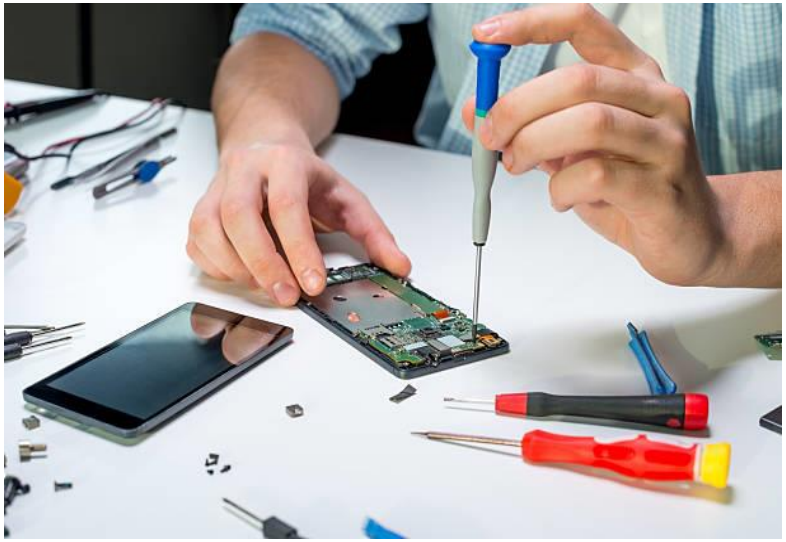
# Cell Phone/Tablet Destruction Issues

416,000 cell phones discarded every day in U.S.



Late model phones difficult to recycle/destroy due to battery



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# NIST Resources

## NIST Special Publication 800-124 Revision 2

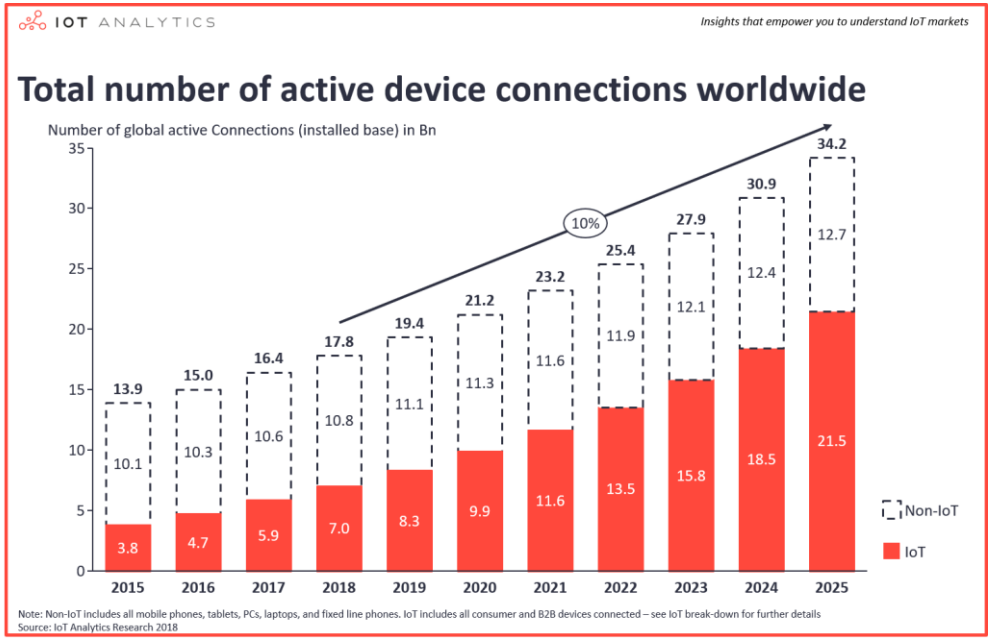
### 5.5 Dispose of and/or Reuse Device

- It is essential to activate whole-device encryption before a device is deployed and to perform a “factory reset” operation to cryptographically erase all user data before disposing of a device.
- There are two additional considerations for secure device disposal: assured destruction of the drive encryption key and destruction of user data on removable memory cards (e.g., SIM or Secure Digital [SD]
- . A thorough device disposal process includes both a factory reset and removal of any associated cards.

https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-124r2-draft.pdf

# IOT Device Growth

Number of internet of things (IoT) connected devices worldwide in 2018, 2025 and 2030 (in billions)

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# IOT Edge Computing data storage

Core IoT edge architecture: Five components

1. Complex event processing
2. Machine learning and artificial intelligence models
3. Applications
4. Offline support
5. Data management

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# IOT Edge Computing Devices

## Core IoT edge architecture: Five Examples

1.NGD Systems offers a range of “computational storage” products that look like traditional NVMe SSDs, but that also allow application code to run within the drive.

2.ScaleFlux offers similar technology that can offload common tasks (such as erasure coding, database acceleration) to the storage device.

3.Amazon Web Services (AWS) provides the capability to import edge data into AWS S3 using Snowball. A Snowball appliance is effectively a ruggedised server with storage that can be used to physically transport data from an offsite location. AWS has further extended the capability of Snowball with Snowball Edge, which allows local data processing either with EC2 instances or Lambda functions.

4.Pure Storage, NetApp and DDN have all developed converged infrastructure or hardware reference architectures to use storage to support on-premise ML/AI systems. In these instances, the storage hardware provides the ability to process large volumes of data in parallel at extremely low latency.

5.Microsoft is working on project Brainwave, custom hardware to process data in real time as it is ingested from external sources. This is driving a move towards real-time AI processing.

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# Tools to Help

NAID AAA Certification Requirements
https://nationalassociationforinfor.app.box.com/s/oj9pibom9nnc5bm3o3hkkktb3jgcxyqq

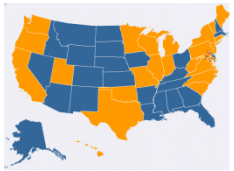
NIST 800-88 Guidelines for Media Sanitization
http://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-88r1.pdf

NSA|CSS Cybersecurity Advisories & Technical Guidance
https://www.nsa.gov/What-We-Do/Cybersecurity/Advisories-Technical-Guidance/

NSA Device Sanitization Manual
https://www.nsa.gov/Portals/70/documents/resources/everyone/media-destruction/PM9-12.pdf?ver=2019-05-16-075903-503

State Electronics Recycling Laws
https://ecyclingcompliance.org/ListView.aspx

https://www.ecycleclearinghouse.org/maps.aspx



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# Tools: Vendor Selection Checklist

| Decision Criteria | Securis Services & Features | How Do Other Providers Measure Up? |
|---|---|---|
| Auditing, Recycling & Destruction Process | Proven, Integrated Four-Step Process to Ensure Fully Secure, Responsible Destruction & Disposal | ☐ Yes ☐ No ☐ Not Sure |
| | Degaussing | ☐ Yes ☐ No ☐ Not Sure |
| | Shredding | ☐ Yes ☐ No ☐ Not Sure |
| | Recycling | ☐ Yes ☐ No ☐ Not Sure |
| | Auditing & Reporting | ☐ Yes ☐ No ☐ Not Sure |
| Hard Drive & Electronic Media Destruction | On-site IT Asset Shredding & Degaussing | ☐ Yes ☐ No ☐ Not Sure |
| | Off-site IT Asset Shredding & Degaussing | ☐ Yes ☐ No ☐ Not Sure |
| IT Asset Removal, Disassembly & Recycling | Secure Collection & Transportation Bins | ☐ Yes ☐ No ☐ Not Sure |
| | Trained Security Technicians | ☐ Yes ☐ No ☐ Not Sure |
| | Environmentally-friendly Zero Export & Zero Landfill Policy | ☐ Yes ☐ No ☐ Not Sure |
| Full Chain of Custody IT Asset Reporting | Auditable Serial Number Inventory Provided to Client | ☐ Yes ☐ No ☐ Not Sure |
| | Notarized Certificate of Recycling & Destruction Provided to Client | ☐ Yes ☐ No ☐ Not Sure |
| | Weight Reporting | ☐ Yes ☐ No ☐ Not Sure |
| | LEED Reporting | ☐ Yes ☐ No ☐ Not Sure |
| Certified & Approved Recycling Services | R2 Certification | ☐ Yes ☐ No ☐ Not Sure |
| | Mobile & Plant-based NAID Certification | ☐ Yes ☐ No ☐ Not Sure |
| | GSA Approved | ☐ Yes ☐ No ☐ Not Sure |
| | Certified by Defense Logistics Information Service | ☐ Yes ☐ No ☐ Not Sure |
| Compliance with Federal, State & Local Laws | HIPAA, HITECH, NIST 800-88 | ☐ Yes ☐ No ☐ Not Sure |
| | DOD, NSA | ☐ Yes ☐ No ☐ Not Sure |
| | PCI Data Security Standard | ☐ Yes ☐ No ☐ Not Sure |
| | Gramm-Leach-Bliley Act, Fair and Accurate Credit Transactions Act (FACTA) | ☐ Yes ☐ No ☐ Not Sure |
| | Various Federal, State, & Local Laws | ☐ Yes ☐ No ☐ Not Sure |
| Trained Technicians | Intense & Ongoing Security Training | ☐ Yes ☐ No ☐ Not Sure |
| | Pre-screening of Employees | ☐ Yes ☐ No ☐ Not Sure |
| | Kroll® Background Checks | ☐ Yes ☐ No ☐ Not Sure |
| | Drug Testing | ☐ Yes ☐ No ☐ Not Sure |
| | Finger-printing | ☐ Yes ☐ No ☐ Not Sure |
| Secure Facilities | 24/7 Surveillance of Facility | ☐ Yes ☐ No ☐ Not Sure |
| | Secure Access of Controls | ☐ Yes ☐ No ☐ Not Sure |
| | Vehicle GPS Tracking | ☐ Yes ☐ No ☐ Not Sure |
| | Two-way Mobile Communications | ☐ Yes ☐ No ☐ Not Sure |
| Proven Reputation for Enterprise-Class Service | 10 Year History | ☐ Yes ☐ No ☐ Not Sure |
| | Proven Track Record | ☐ Yes ☐ No ☐ Not Sure |

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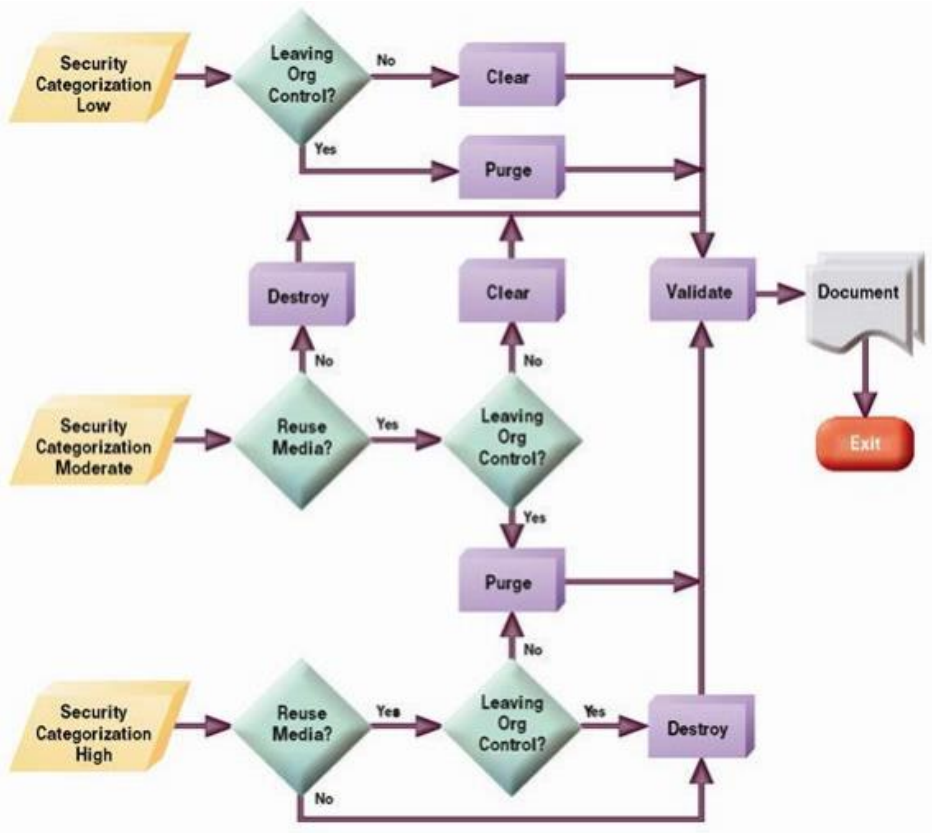
# Tools: Data Security

DOD 5220.22-M NIST 800-88

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