One NASA Cost Engineering Database (ONCE) and Data Protection Overview
# 2022 NASA Cost & Schedule Symposium

26 – 28 April 2022

NASA HQ OCFO Strategic Investments Division

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Overview

- **ONCE Background**
- **Major Improvements for 2022**
- **Data Summary**
- **Model Portal Updates and Containers**
  - Model Hosting via ONCE
- **Security and Data Protection**
  - ONCE Access Information
  - Controlled Unclassified Information (CUI)
- **Conclusion**

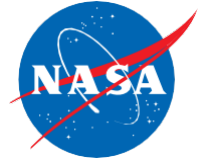- **ONCE Virtual Live Demo:**
  - 1 June 2022, 2pm Eastern
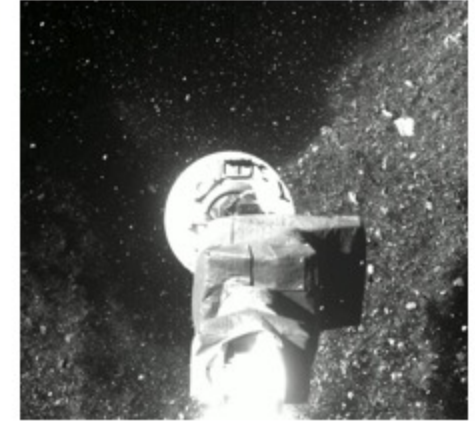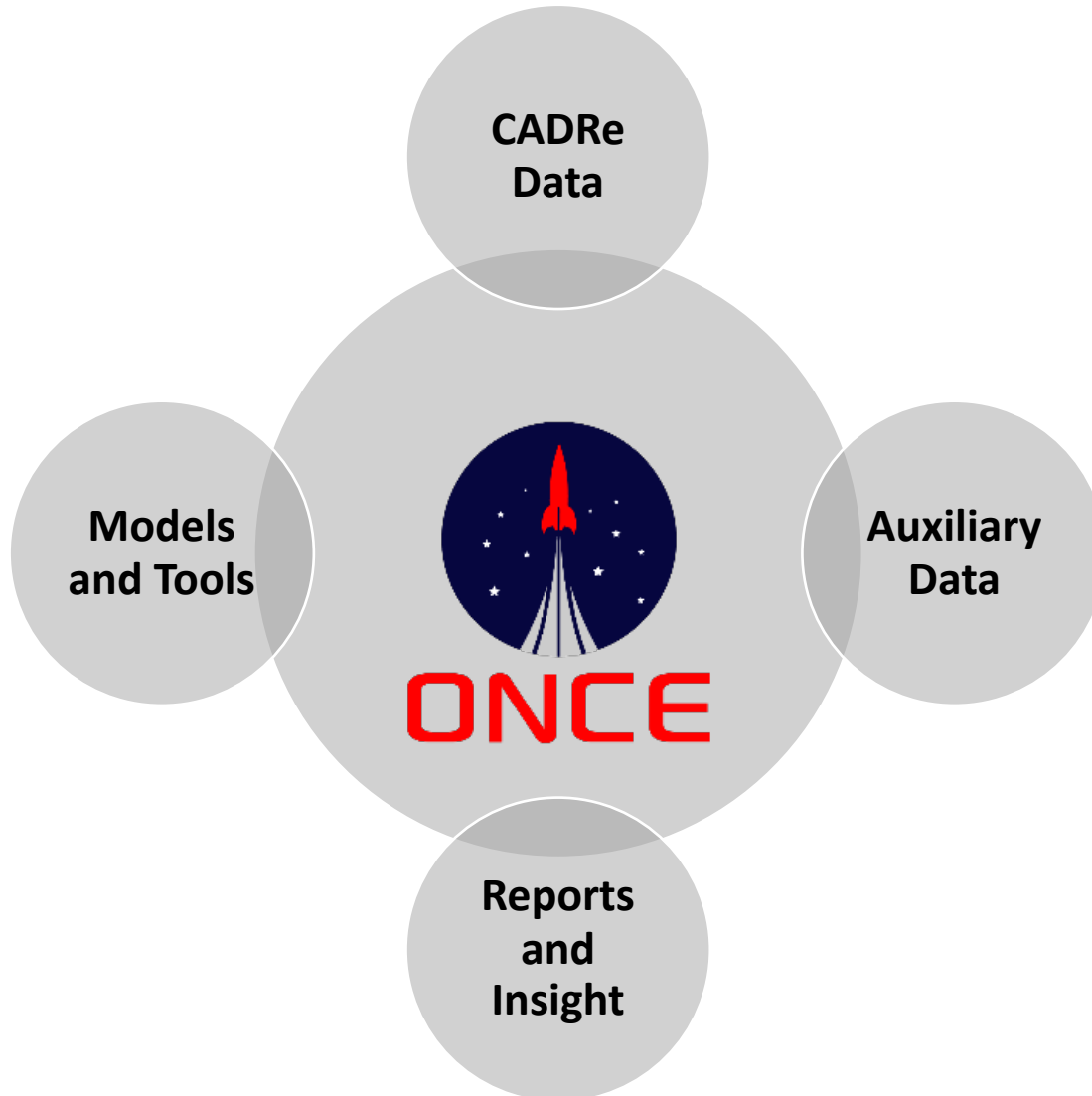
What is ONCE and CADRe?

- The ONCE Database (aka https://oncedata.hq.nasa.gov, aka "ONCE") is a government website managed by HQ OCFO SID that provides access to technical, cost, schedule and other programmatic information about NASA Projects.

- The **data primarily comes from CADRe** (Cost Analysis Data Requirements)
  - CADRe is the Agency's formal cost data collection initiative in NPD 71205.E
  - CADRe is paid for by SID and performed during lifecycle reviews on Projects
  - **Part A** = Long narrative describing the mission, design, spacecraft, etc. (MS Word doc)
  - **Part B** = Technical Data (**MS Excel file**)
  - **Part C** = Cost, Schedule, Risk, Programmatic Data (**MS Excel file**)

- The website provides a user interface to search and retrieve data
  - Enables users to quickly build analogy datasets, develop estimating relationships, conduct assessments, examine historical trends, and many other important functions that support NASA projects and decision makers

- Request access to ONCE via IDMax/NAMS (https://nams.nasa.gov)
  - ONCE is behind the NASA firewall and intended for NASA CS and NASA Contractors
    - Exclusions include: NASA prime contractors, Academia/Universities, Foreign/International
  - For more information on ONCE and how to request access:
    - https://www.nasa.gov/offices/ocfo/functions/models_tools/CADRe_ONCE.html

ONCE Database at the Center

o The ONCE database is at the center of OCFO SID efforts to build and improve the NASA community.

o ONCE empowers analysts and improves estimating at NASA by providing access to:

- **CADRe Data**
  - ➢ Active filtering for custom user reports
  - ➢ CADRe Library

- **Auxiliary Data**
  - ➢ Normalized datasets
  - ➢ Multiple Electronic Libraries (Symposium, Schedule, KDP, etc.)

- **Reports and Insight**
  - ➢ Dynamic graphical & tabular reports
  - ➢ Structured database reporting

- **Models and Tools**
  - ➢ Model Portal sharing access across community
  - ➢ Online Models
  - ➢ Container Hosting

ONCE Improvements

✓ **CADRe Entry in ONCE**
- Moving CADRe entry directly into ONCE for CADRe Developers
- Validation of data prior to database import
- CADRe documents will be created by ONCE

✓ **AWS Container**
- Container capability via AWS ECS
- Incorporated first container for models hosted in Other OS (Linux)
- Pilot with MSFC Planetary Program Office and Aerospace Corp, "aView"

✓ **Improved Database Documentation**
- Performed database cleanup to streamline data objects
- Created database schema document and full data dictionary

✓ **ONSET**
- Incorporated new version of ONSET
- Includes updates to ASCoT and COMPACT

✓ **Updated ONCE Documentation**
- New user manual and resources published
- Developing a User Knowledge Base
- ONCE Live Demo / Training via Teams

✓ **Model Portal**
- Completed review of all models and added Acumen Fuse

CADRe Entry in ONCE

ONSET Interface in ONCE

ONCE Numbers & Information Summary
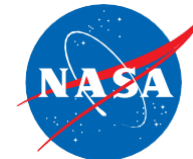
Total Downloads: 2130+
Top Models: ACEIT/JACS, NICM, MOCET, PCEC, Argo

9 total models & tools available for users to download

Total Size: 296GB (+27GB)
77k (+4k) documents

Most Popular: CADRe Library and Search Results

LRD, EOM, CDR and PDR most popular CADRe Milestones

Online Model Usage:
32 Users per Month Avg

Includes both ASCoT and COMPACT

ONCE Growth - CADRe Usage

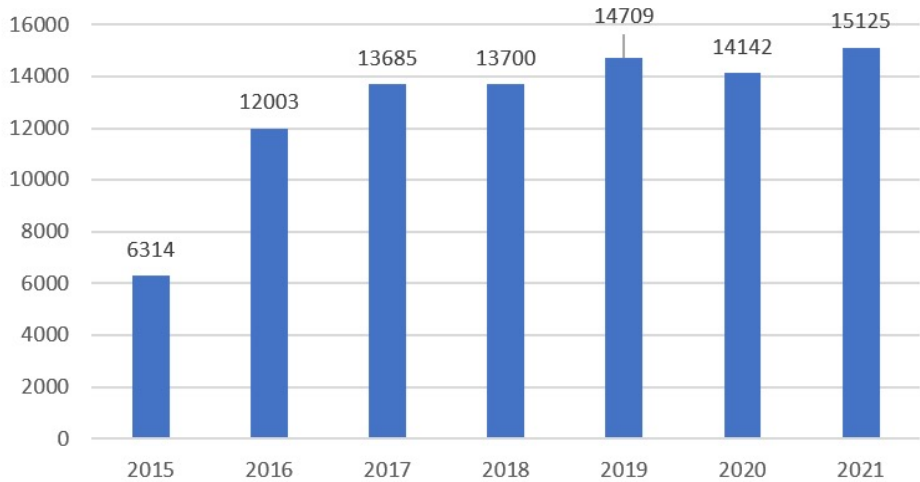## CADRe has Experienced a 140% Usage Growth just since 2015

CADRe File Related Downloads 2015-2021

Bar chart values:
- 2015: 6314
- 2016: 12003
- 2017: 13685
- 2018: 13700
- 2019: 14709
- 2020: 14142
- 2021: 15125

Flavors of CADRe Downloads

Pie chart values:
- Reports 657
- CADRe Templates 16
- Sear...
- CADRe Library, 4,058
- Part A,B,C, 11,184
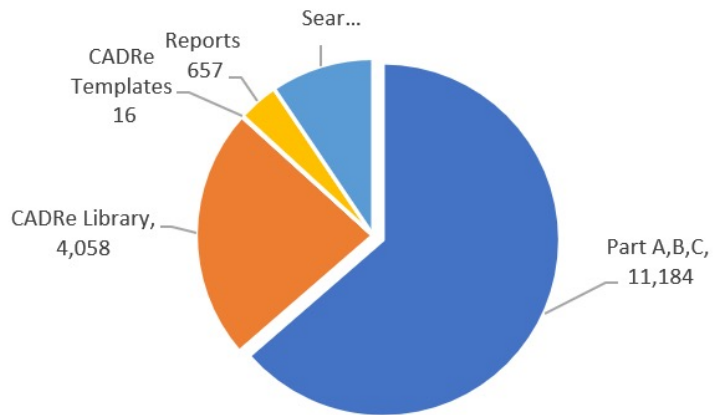
15,125 Files Downloaded in 2021 equals ~151,250 pages (10 pages/file)
Each page is approximately 0.004 Inches thick (per google)
This equals 605 Inches or 50 Feet

50 Feet

6 Feet

Approximately 50 Feet of CADRes & CADRe Source Documents Downloaded from ONCE Every Year!

Model Portal Updates and Containers

- **ONCE offers several avenues for model distribution and hosting:**

  1. **ONCE Model Portal**
   - 9 models, More than 2,100 unique model downloads in the last 8 years
     - Acumen Fuse added
     - Requires: Electronic Files and Licensing Information

  2. **Online Model Hosting**
     - ONSET (Online NASA Software Estimating Tools) w/ASCoT & COMPACT
     - Requires: Compatible Deployment Package (see ONCE Team for details)

  3. **Container Hosting**
     - ONCE is hosted on the AWS NASA HQ Managed Cloud Environment (MCE)
       - ONCE's Elastic Container Service (ECS) Fargate instance provides ability to host containers
       - Containers provide a standard way to host software products independent of their operating system
         - Allows products developed in different environments to be hosted within one URL
         - Containers can be operated without having to directly manage and maintain virtual machines
     - Requires: Container(s) (see ONCE Team for details)
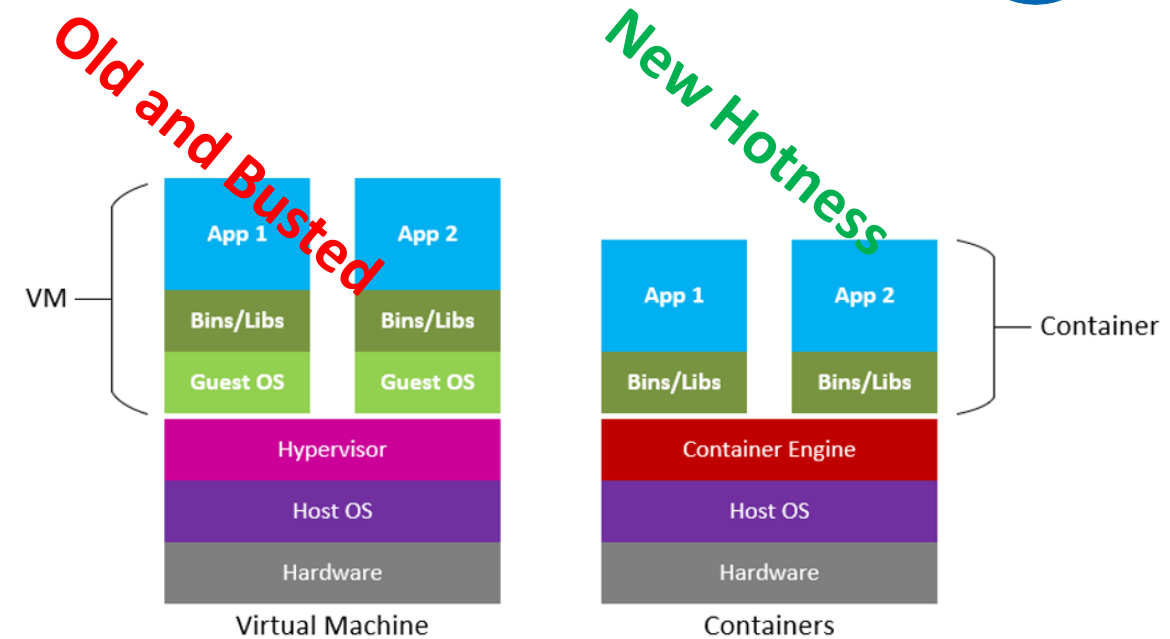
- **Contact us to host and share your models: james.k.johnson@nasa.gov**

SECURITY AND DATA PROTECTION

ONCE Access Information

Allowable Users/User Responsibilities

- **Allowable Users:**
  - NASA Civil Servants
  - NASA Contractor with active contract and NASA PIV badge
  - Other US Government Civil Servant with OCFO SID approval (requires documented agreement)
  - Other US Government Contractor with OCFO SID approval (requires documented agreement)

- **Unallowable Users:**
  - Academic/University Student (includes interns)
  - Foreign Nationals
  - Spacecraft Prime Contractors (exception via NASA Cost IPT Vendor Specific Data Package)
  - Instrument Prime Contractors (exception via NASA Cost IPT Vendor Specific Data Package)

- **User Responsibilities:**
  - All users must have acceptable justification for access to ONCE.
  - Users accounts must be kept current
    - Periodic review of user accounts is required per NASA IT policy
  - Users can be subject to investigation, bans, disciplinary action, and/or criminal prosecution
    - US Federal Government Information System located behind the firewall with full monitoring and tracking
  - All users agree to all conditions on the ONCE NAMS request form and each login via Splash Screen

Terms and Conditions, NAMS, and Splash Screen

- **NASA Use Only**
  - Agree to use the data within ONCE for the purpose of performing work for NASA and that Contractors will only use the data when performing work on contract for NASA.

- **Eligible Users**
  - Agree they are a NASA employee, or an employee of an approved contractor company.
  - Agree they are not a university student, nor employee of an aerospace hardware prime contractor company.

- **Accounts and Monitoring**
  - Agree that by accessing ONCE you are consenting to monitoring and recording with no expectation of privacy.
  - Agree to abide by the Security of Information Technology Procedures and Guidelines (NASA NPG 810.1)
  - Understand that misuse of assigned accounts, sharing accounts, or accessing the accounts of others is not permitted.

- **Controlled Technical Data**
  - Agree not to disseminate or share controlled technical data in a manner that would violate applicable U.S. Export Control laws and regulations
  - Agree that they have not been disbarred, suspended, or otherwise deemed ineligible to perform work on U.S. Government contracts, or have previously violated U.S. Export Control laws
  - Acknowledge their individual responsibilities under applicable U.S. Export Control laws and regulations - including the obligation, under certain circumstances, to obtain an export license from the U.S. Government prior to the release of controlled technical data within the United States.

- **Model Portal**
  - Agree to follow the applicable license agreements for software models and tools that are available for download on the ONCE Model Portal.
  - Agree to not share the software models and tools outside of the ONCE Model Portal or in violation of the posted guidelines or license restrictions.

- **OCFO Data**
  - Agree to only access OCFO data with a legitimate business justification and prior approval from a HQ OCFO SID supervisor.

- **Splash Screen**
  - User reiterates their agreement to all responsibilities every time ONCE is accessed and the splash screen terms are accepted.

Office of the Chief Financial Officer

By clicking "OK" you agree:

- The use of data within the ONCE database is for the purpose of performing a contract with NASA.
- The misuse of data may constitute grounds for termination of access privileges, administrative action, and/or civil or criminal prosecution.
- To abide by proprietary software regulations and the Security of Information Technology Procedures and Guidelines (NPG 810.1).
- To acknowledge your individual responsibilities under applicable U.S. Export Control laws and regulations - including the obligation, under certain circumstances, to obtain an export license from the U.S. Government prior to the release of controlled technical data within the United States.
- To not share the software models and tools outside of the ONCE Model Portal or in violation of the posted guidelines or license restrictions.

OK

ONCE Access: Do's and Don'ts

👍

- ✓ Do request a walkthrough of ONCE for a quick understanding of the information and tools available.
- ✓ Do contact the ONCE team (oncesupport@oncedata.com) with any issues:
  - ✓ ONCE Access
  - ✓ CADRe data inquiries
  - ✓ Data discrepancies
  - ✓ Security concerns
- ✓ Do encourage your colleagues to follow NASA policies and best practices.
- ✓ Do know where all your data is located and who has access to it.

👎

- X Do not access ONCE or ONCE data from another user's account.
- X Do not share ONCE data.
  - X Do not include historical data from ONCE in public presentations.
    - X Do not assume audiences understand the data protection guidelines you agreed to follow.
- X Do not distribute or share models with unauthorized users.
- X Do not use ONCE data for any other purpose than what is on contract with NASA.
- X Do not acquire data from ONCE for other users.

SECURITY AND DATA PROTECTION

# Controlled Unclassified Information (CUI)

New Requirements for CUI Markings

- Established by Executive Order 13556, the Controlled Unclassified Information (CUI) program **standardizes the way the Executive branch handles unclassified information** that requires safeguarding or dissemination controls pursuant to and consistent with law, regulations, and Government-wide policies.
  - CUI is sensitive information that laws, Federal regulations, or Government-wide policies require or permit executive branch agencies to protect – protection that agencies have undertaken for decades, but on an ad hoc and inconsistent basis. The **legacy of inconsistent agency policies, procedures, and markings** that arose to safeguard sensitive unclassified information, has spurred the ongoing drive for reform by the past three Presidential administrations.
- NPR 2810.7 (Controlled Unclassified Information) became effective 10/22/2021
  - NASA required training classes via SATERN
- CUI information must be maintained securely, clearly labeled, and may only be stored or manipulated with Agency managed devices, services and applications.
- **NASA allows sharing and storing of CUI information without individual file encryption via Office 365.**
- Additional Resources:
  - https://www.nasa.gov/content/controlled-unclassified-information
  - https://csrc.nist.gov/Projects/protecting-controlled-unclassified-information
  - https://www.archives.gov/cui
  - https://youtu.be/zA03yDsNxm0 (11min overview)

CONTROLLED
UNCLASSIFIED
INFORMATION

CUI Decision Tree
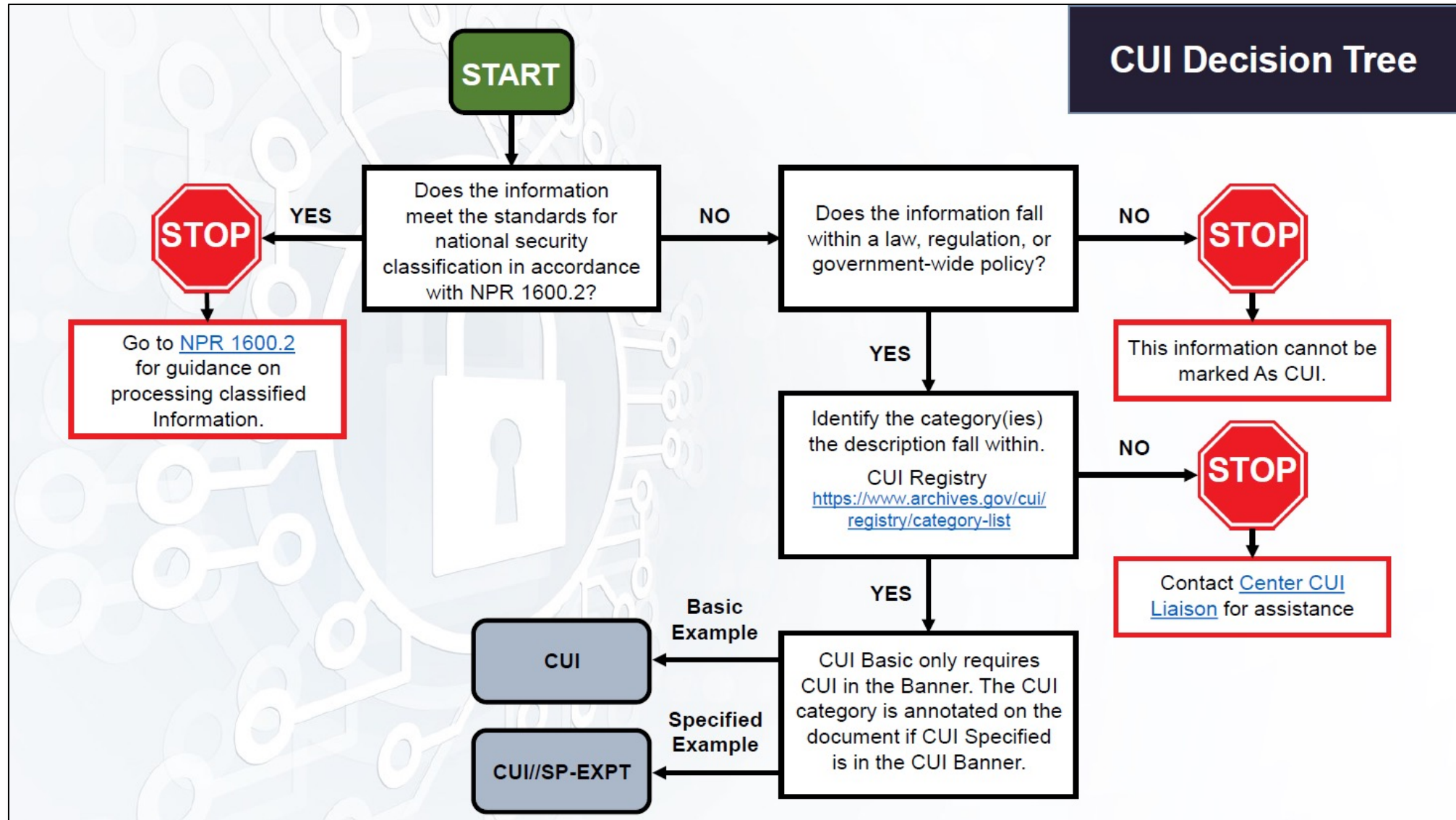
Integrating CUI into CADRe and ONCE

- Requirement to modify all systems to the standard identified in the 32 CFR 2002 by 31 December 2021

- ONCE Team spent from Fall 2021 to Early 2022 on planning and updates
  - Decision made to use CUI//SP-PROCURE and CUI//SP-PROPIN for all ONCE information

- Historical CADRe documents updated to include the CUI cover page and headers
  - Purple cover page added to all CADRe files
  - Over 1,500 documents (Part A/B/C)
  - Change-logs incorporate updates and document any future edits

- CADRe templates now include the appropriate CUI markings
  - Available for CADRe Developers and others

- ONCE now has required CUI markings in all applicable areas:
  - All dashboards and their exports include the applicable CUI cover page and headers
  - All exported files now include the applicable CUI cover page
  - All exported data (e.g. User Report data) include the applicable CUI cover page and headers
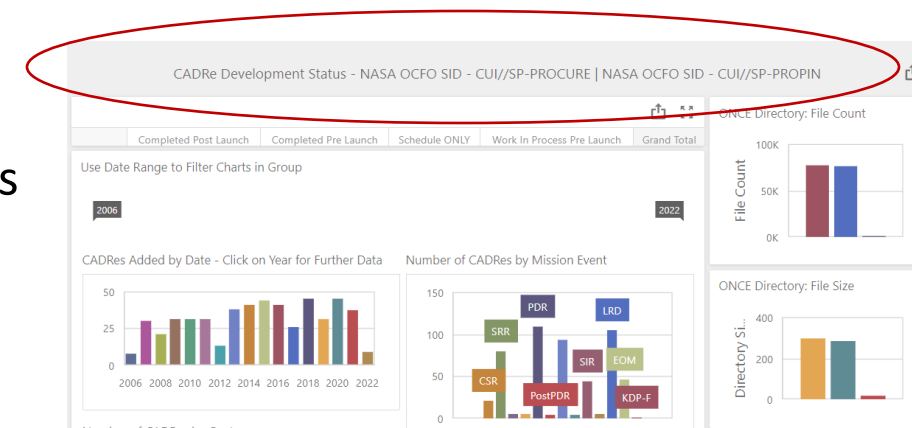
ONCE Export Example

CUI cover page added to first tab in Excel documents
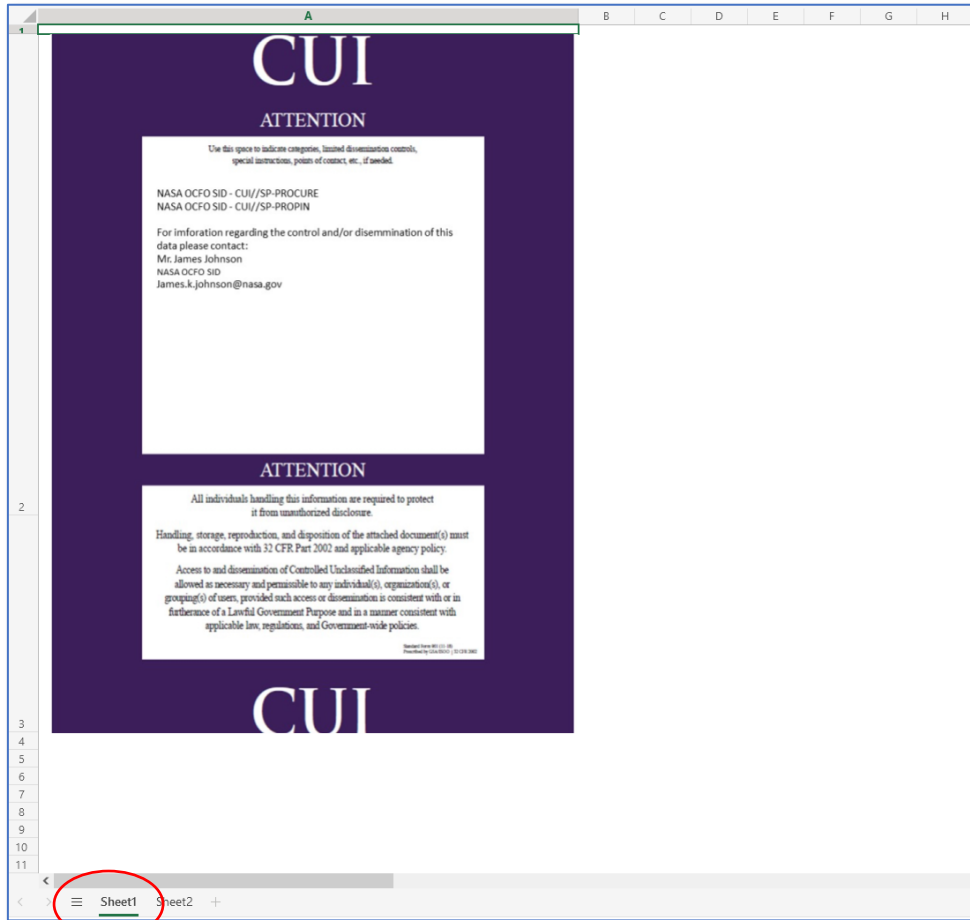
CUI headers and footers integrated into exported data

ONCE File Download

CUI cover page is included in all file downloads within ONCE.

Conclusion

- **ONCE is continuing to grow with CADRe and the NASA community**
  - YoY growth is very strong in terms of new data and new users

- **The team is prioritizing improvements that will increase data quality and accessibility**
  - New approach to direct-entry of CADRe data is a significant improvement

- **ONCE offers the community a variety of methods to host models and tools**
  - Model Portal: Electronic files and license information
  - Online Models: Deployment Package
  - Container(s) via Amazon ECS

- **Users are reminded to abide by terms and conditions, to protect the data, and only use it for NASA work**
  - All of ONCE is now marked Controlled Unclassified Information (CUI)
  - Contact HQ OCFO SID with questions to avoid becoming an "investigation"

- **Reminder:**
  - ONCE Virtual Demo / Training via Teams on 1 June at 2pm Eastern

- **Shout-Outs:**
  - Craig McArthur, SID Director
  - Robin Smith, Symposium Coordinator
  - Dave Mitchell, CPMO Overview
  - Sam Fleischer (ASCoT) & Melissa Hooke (COMPACT), Bayesian RoT
  - Eric Plumer (CADRe), Joe Mrozinski (NICM), Brian Alford (PCEC)
  - Marc Hayhurst (MOCET), Sarah Lang & Justin McNeill (aView)

Additional ONCE Resources

- ONCE CADRe website on public NASA.gov:
https://www.nasa.gov/offices/ocfo/functions/models_tools/CADRe_ONCE.html

- ONCE website (NASA network only):
https://oncedata.hq.nasa.gov

- How to request access:
https://www.nasa.gov/sites/default/files/atoms/files/_once_user_access_request_form_tagged.pdf

- HQ ONCE POC: James Johnson, james.k.johnson@nasa.gov

- SAIC ONCE Team: Julie McAfee, julie.e.mcafee@nasa.gov, Mike Blandford, michael.blandford@nasa.gov

- HQ CADRe POC: Eric Plumer, eric.plumer-1@nasa.gov

- 2019 NCSS Presentation:
https://www.nasa.gov/sites/default/files/atoms/files/18_once_2019_ncss_main_presentation_vsubmit_tagged.pdf

- 2018 NCSS Presentation:
https://www.nasa.gov/sites/default/files/atoms/files/08_once_2018_ncss_main_presentation_vsubmit_tagged.pdf