



Supporting Virtual Audit: E & C Real Property Application

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- **DON Real Property Financial Audit went virtual in 2020 given COVID-19 travel restrictions**
- **NAVFAC GeoReadiness was relied on to provide a way forward in the virtual environment to continue the audit efforts of testing existence and completeness (E&C) of real property assets**
- **The E&C Real Property Application has supported audit efforts for over a year**
 - **Continues to lower the level of effort impacting the GeoReadiness community, who typically supports auditor on-site visits**

E&C Real Property Application: Data Overview



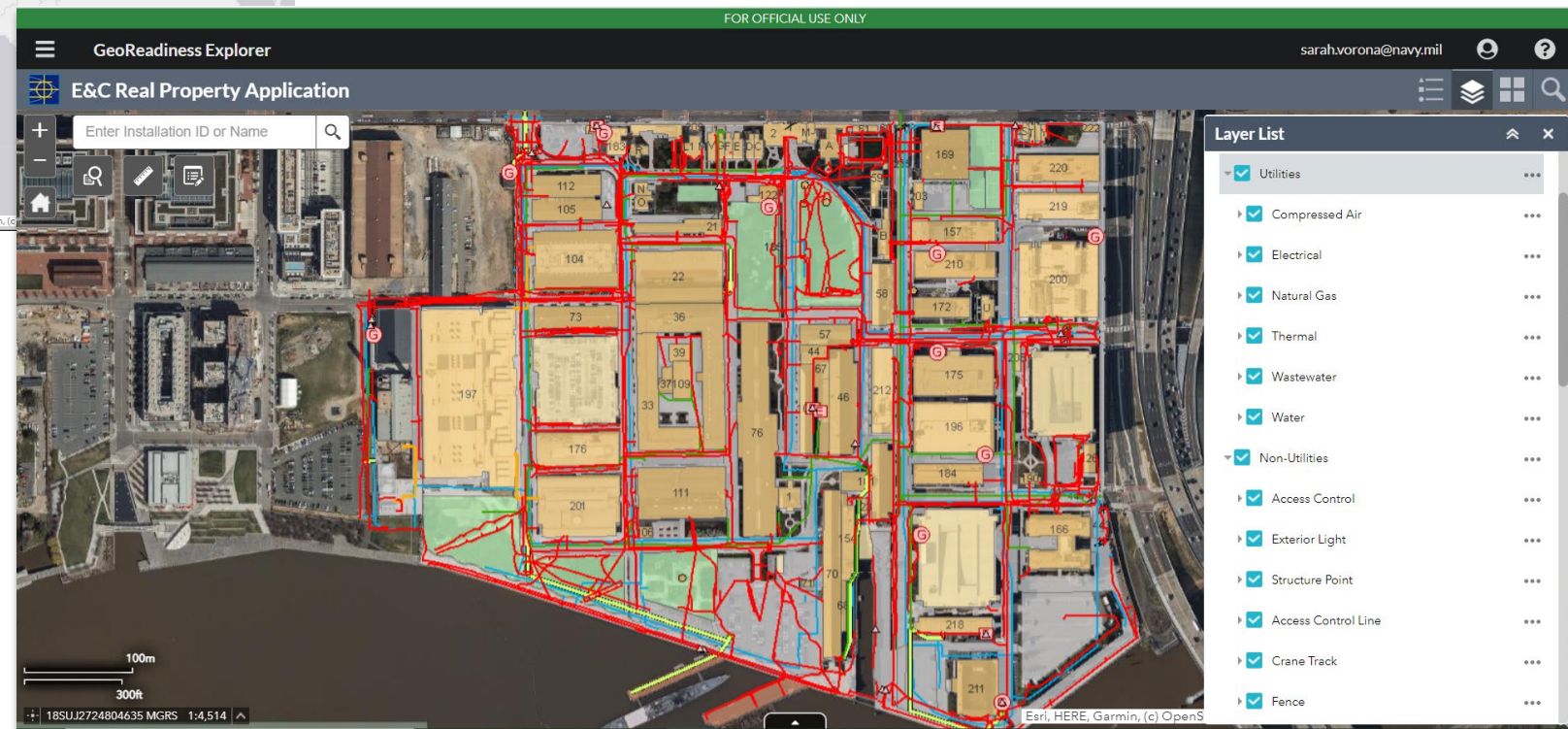
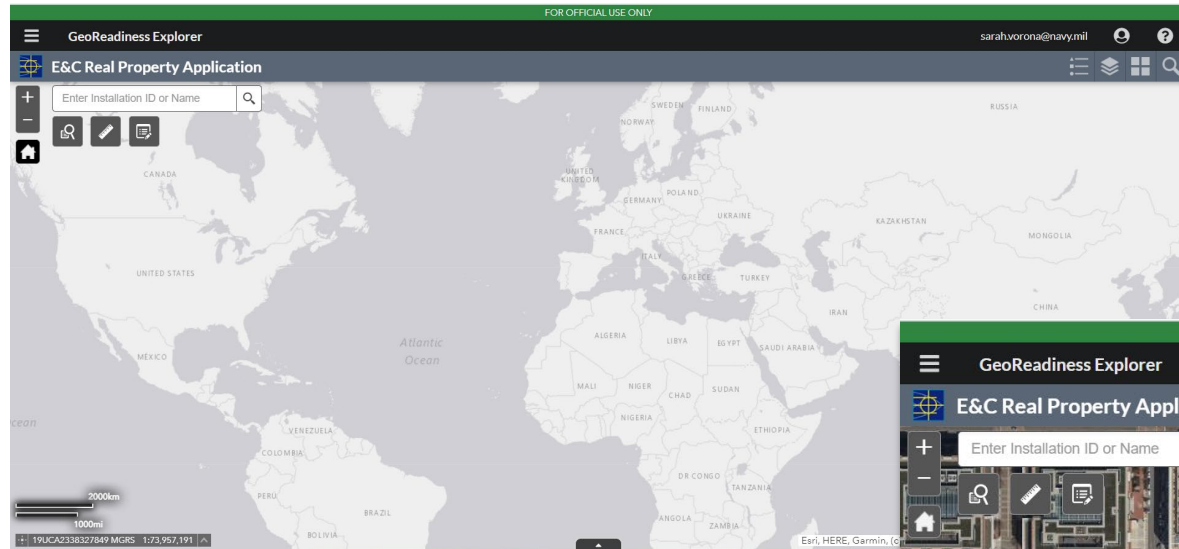
- **Data are combined from 3 sources**
 - Enterprise GIS database (Navy Data Model)
 - Authoritative real property data (iNFADS)
 - NAVFAC FEC-populated data
- **A snapshot of assets are captured from the Enterprise GIS database, processed, and published to the GeoReadiness 10.8.1 Portal**
- **Two published, non-hosted services display the data**
 - Non-Utilities
 - Utilities
- **A hosted feature service containing auditor notes is configured for use with the Smart Editor widget**
 - Allows auditors to plot points and input notes

E&C Real Property Application: Capability Overview



- **Splash Screen**
 - Notifies auditors of changes to the application and/or when data updates are in progress
- **Query Widget**
 - GIS layers configured to find specific assets based on input of a Facility ID
- **Measure Tool**
 - Allows auditors to make linear and area measurements
- **Auditor Notes (Smart Editor widget)**
 - Allows auditors to drop points and take notes
 - Configured so each auditor can see all points and notes but only edit their own
- **Advanced Search**
 - Quickly search for Navy Installations by name or keyword

E&C Real Property Application



E&C Real Property Application: Utilities Service



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GeoReadiness Explorer sarah.vorona@navy.mil

E&C Real Property Application

Enter Installation ID or Name

Electric Generator (1 of 2)

- Installation Name
- Installation Code
- Site Name
- Site Code
- Special Area Name
- Special Area Code
- Facility ID
- RPUID
- RPA Type Code
- RPA Name
- Interest Type Code
- Operational Status
- Zoom to

Electric Generator

- Installation Name
- Installation Code
- Site Name
- Site Code
- Special Area Name
- Special Area Code
- Facility ID
- RPUID
- RPA Type Code
- RPA Name
- Interest Type Code
- Operational Status Code
- Property No
- Predom Current Use Cat Code
- Maint Resp UIC
- Cost to Government
- Replacement Value
- RPI Size Quantity
- RPI Size UOM Code
- Map Grid Location
- MGRS Location
- MGRS Location Method

E&C Real Property Application: Non-Utilities Service



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E&C Real Property Application

Enter Installation ID or Name

Building (1 of 2)

- Building
- Installation Name
- Installation UIC
- Site Name
- Site Code
- Special Area Name
- Special Area Code
- Facility ID
- RPUID
- RPA Type Code
- RPA Name
- Interest Type Code

Zoom to

Building

- Installation Name
- Installation UIC
- Site Name
- Site Code
- Special Area Name
- Special Area Code
- Facility ID
- RPUID
- RPA Type Code
- RPA Name
- Interest Type Code
- Operational Status Code
- Property No
- Predom Current Use Cat Code
- Maint Resp UIC
- Cost to Government
- Replacement Value
- RPI Size Quantity
- RPI Size UOM Code
- Map Grid Location
- MGRS Location
- MGRS Location Method

E&C Real Property Application: Installation Search



wash X 🔍

- NMIC SUITLAND
- NAVAL SUPPORT ACTIVITY WASH -
- NDEPT POTOMAC ANNEX
- NAVAL SUPPORT ACTIVITY WASH -
- NSWC CARDEROCK
- NAVAL SUPPORT ACTIVITY WASH -
- NAVAL RESEARCH LAB
- NAVAL SUPPORT ACTIVITY WASH**
- NAWS CHINA LAKE - RANDSBURG
- WASH AREA
- NAVAL SUPPORT ACTIVITY WASH -
- NAVAL OBSERVATORY

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GeoReadiness Explorer

E&C Real Property Application

NAVAL SUPPORT ACTIVITY WA X 🔍

NAVAL SUPPORT ACTIVITY WASH

Installation_Extract

- INSTAL_ID
- RPSUID
- INSTALLATION_CODE
- CNCREGION
- ISNOTIONAL
- OWNER
- METANOTES
- CREATOR
- DATECREATE
- COLLECTION
- LOCATIONAC
- EDITOR
- DATEEDITED

Zoom to

18SUJ2665004703 MGRS 1:9,028

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community | CDA

E&C Real Property Application: Query Widget



GeoReadiness Explorer
E&C Real Property Application

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Enter Installation ID or Name

Query

Feature Class Results

Wastewater Gravity Main_Query result

Displayed features: 1/1

Wastewater Gravity Main

- Installation Name
- Installation Code
- Site Name
- Site Code
- Special Area Name
- Special Area Code
- Facility ID
- RPUID

100m 300ft 18SUJ2725804650 MGRS 1:4,514

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Enter Installation ID or Name

Query

Feature Class Results

Road_Query result

Displayed features: 1/1

RoadSection

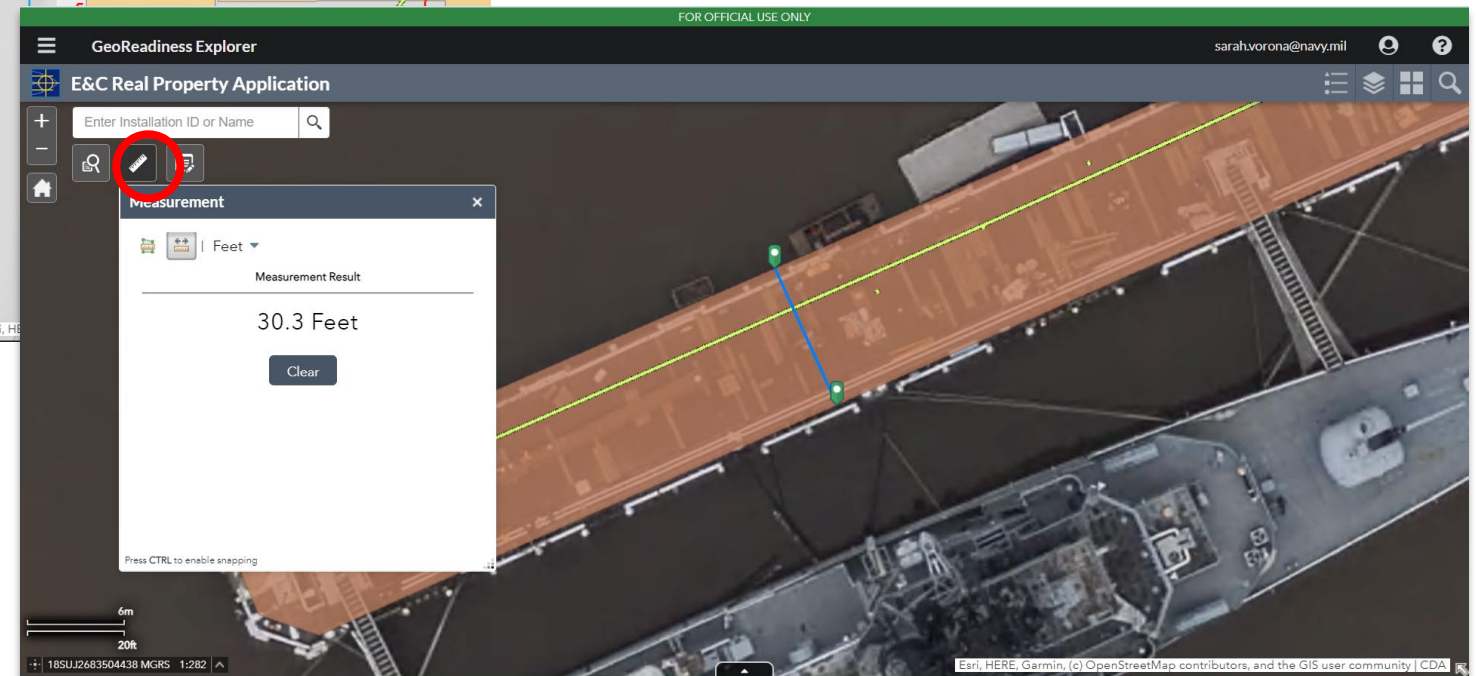
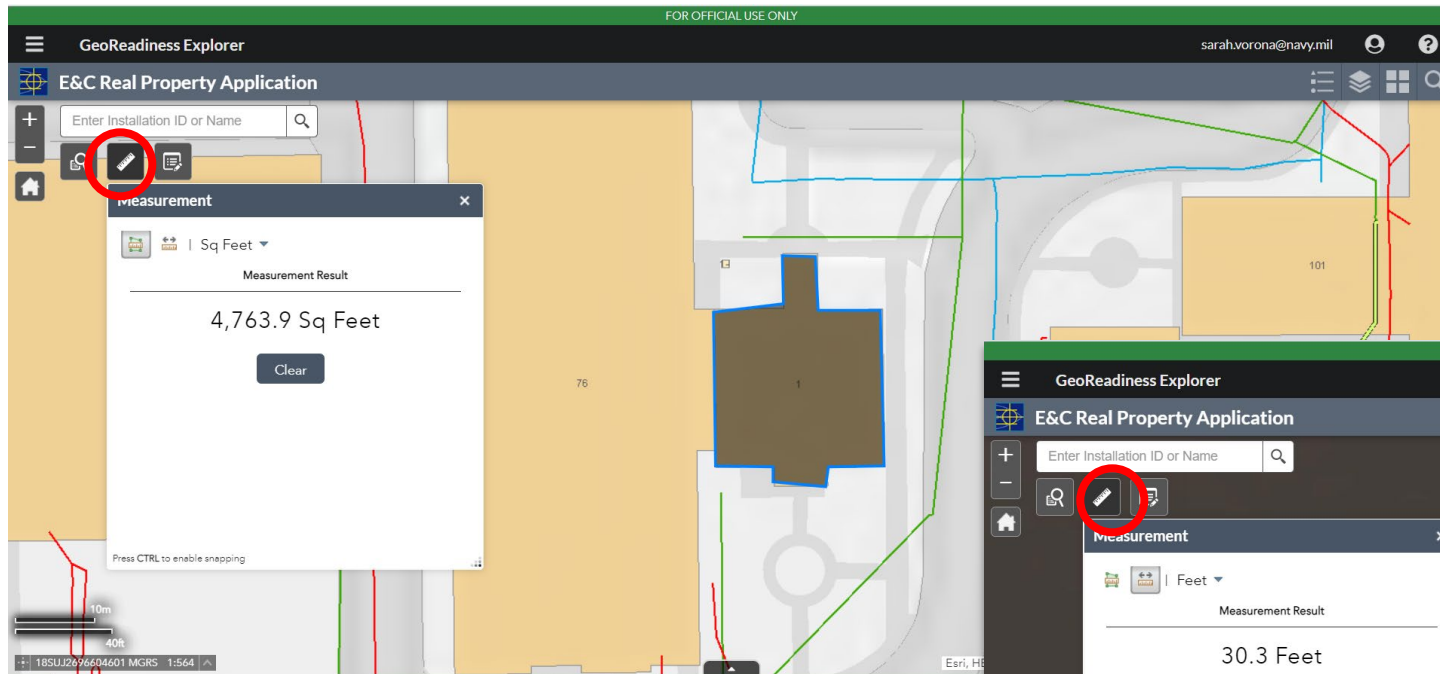
- Installation Name
- Installation UIC
- Site Name
- Site Code
- Special Area Name
- Special Area Code
- Facility ID
- RPUID

100m 300ft 18SUJ2724904628 MGRS 1:4,514

Layers

- Road_Query result
- Wastewater Gravity Main_Query result

E&C Real Property Application: Measure Tool



E&C Real Property Application: Auditor Notes



The screenshot displays the E&C Real Property Application interface. At the top, it says "FOR OFFICIAL USE ONLY" and "GeoReadiness Explorer" with the user email "sarah.vorona@navy.mil". The main map area shows a facility layout with buildings and a highlighted area. A red box highlights the "Auditor Notes" dialog box, which contains the following fields:

- Type: Missing Asset
- Comment: Missing generator (TEST)
- Attachments: Choose File | No file chosen
- Edited seconds ago
- Edit Geometry

Buttons for "Cancel" and "Save" are at the bottom of the dialog. A red arrow points from the "Save" button to the "E&C Auditor Notes" layer in the Layer List on the right. Another red arrow points from the "Save" button to the "E&C Auditor Notes" layer in the bottom data table.

The Layer List on the right shows the following layers:

- E&C Auditor Notes
- NGA US National Grid
- Utilities
- Non-Utilities
- Installations Search
- GRX Worldwide Imagery

The bottom data table shows the following data:

#	OBJECTID	Type	Comment	created_user	created_date	last_edited_user	last_edited_date	globalid
<input checked="" type="checkbox"/>	36451	1	Missing generator ...	sarah.vorona@navy.mil	April 26, 2021	sarah.vorona@navy.mil	April 26, 2021	{913DCFF5-3067-4C05-B2EA-924C2775FF95}

- **E&C Real Property Application data are published as a snapshot in time and updated as needed**
- **Optimizing performance**
 - GIS layers are categorized as either 'Utilities' or 'Non-Utilities' and a service is published for each
- **Avoiding service interruption for the auditors**
 - All geoprocessing activity occurs in memory with results initially written to an intermediate fGDB (the processing fGDB)
 - The publishing fGDB is not updated until all GIS layers have been processed

E&C Data GeoProcessing Workflow



Data Inputs

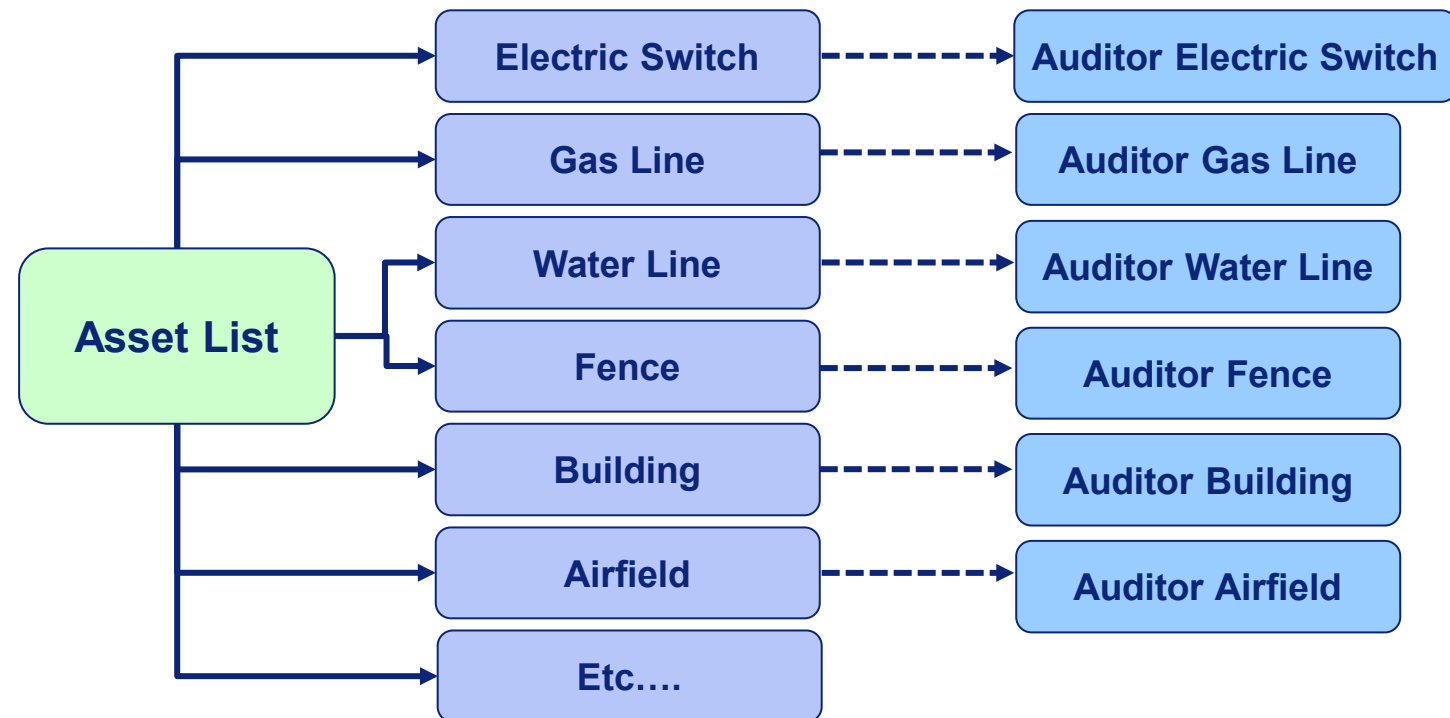
Asset List
Including FEC-populated fields
(Excel → fGDB table)

NFA View
(Tabular View of Authoritative
Real Property Data)

58 NDM GIS Feature Classes
(Utilities and Non-Utilities)

*Step 1: Join Assets in the Excel
to all Real Property SDE layers*

*Step 2: Extract to-be-audited
GIS features to in memory
feature classes*

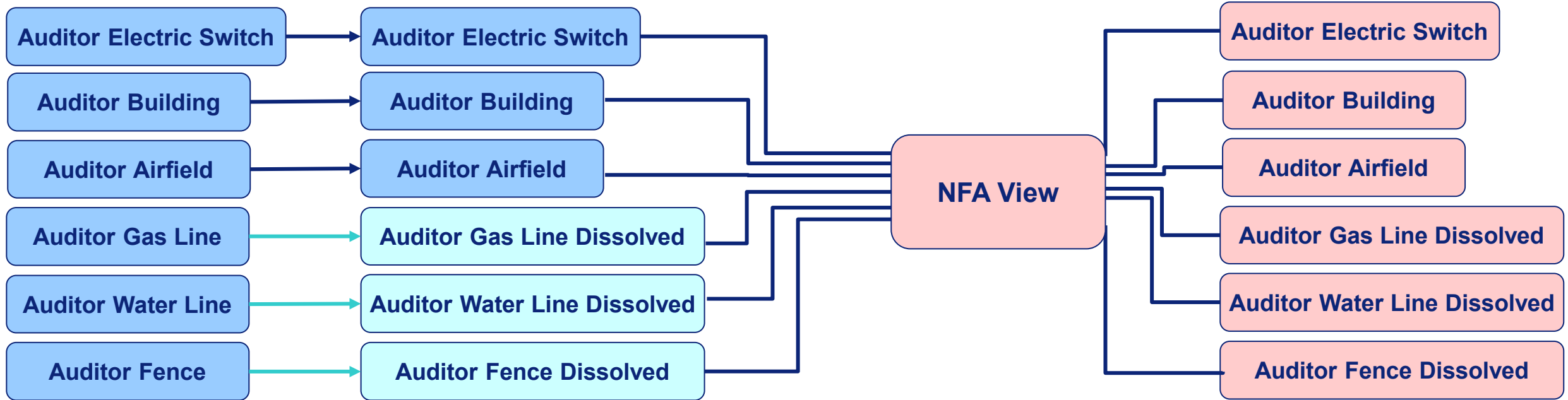


E&C Data GeoProcessing Workflow



Step 3: Identify geometry type...

*If point or polygon, remove most attribution
(to match dissolved feature class)*



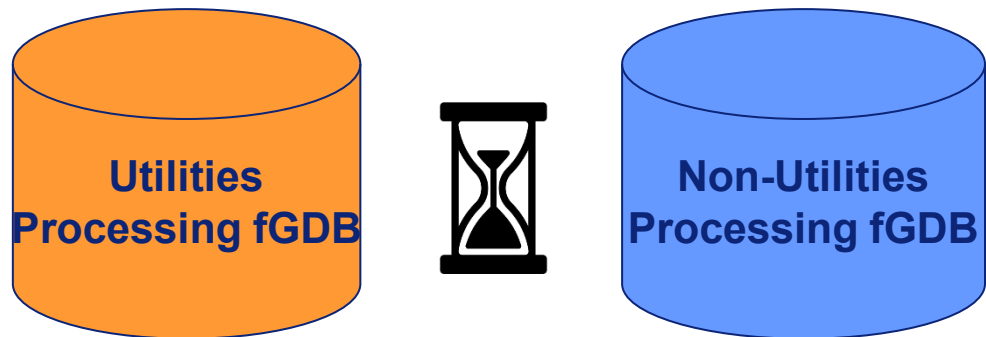
Step 4: Join data from the NFA View and add fields from the real property database

If polyline, dissolve lines based on the Facility ID

E&C Data GeoProcessing Workflow



Step 5: As each layer processes, the final data are written to a processing file geodatabase and the processing steps are logged



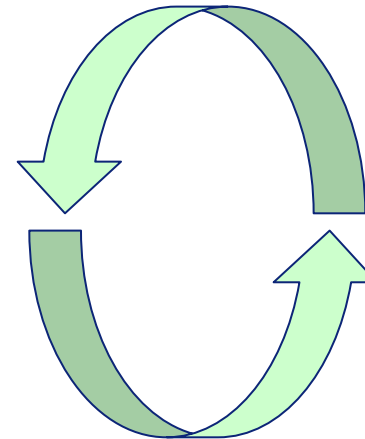
Processing UTIL data layers:

WW_NDM_P.wLine:

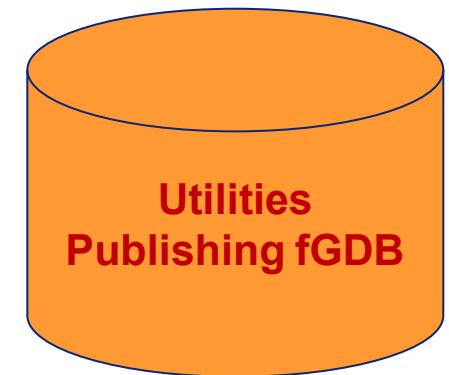
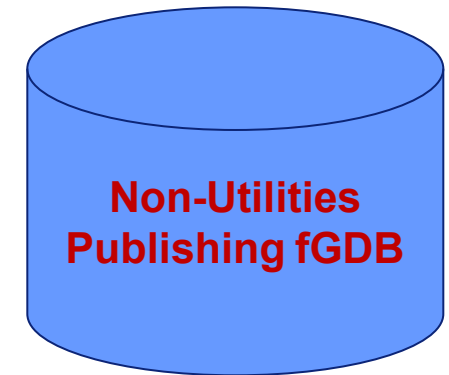
```
WW_NDM_P.wLine Shape Type: = Polyline
WW_NDM_P.wLine record count = 256510
WW_NDM_P.wLine VirtMeas match (and filters if applied) = 131496
wline_dis_mem dissolved = 1001
wline_EC_Audit count = 1001
```

Step 6: Final data are copied from the processing database to the publishing database.

Truncate Old



Append New



Updating Publishing fGDB:

Publishing wLine_EC_Audit count = 1001

Next Steps...



- **Automate the data refresh process**
 - The geoprocessing completes tasks autonomously, but needs to be executed manually
 - Implement scheduled tasks, via ArcGIS Pro, to run the script monthly
- **Configure an ArcGIS Dashboard summarizing auditor notes**
 - Examine the frequency of missing assets or missing documentation

If you have any questions, please reach out!



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