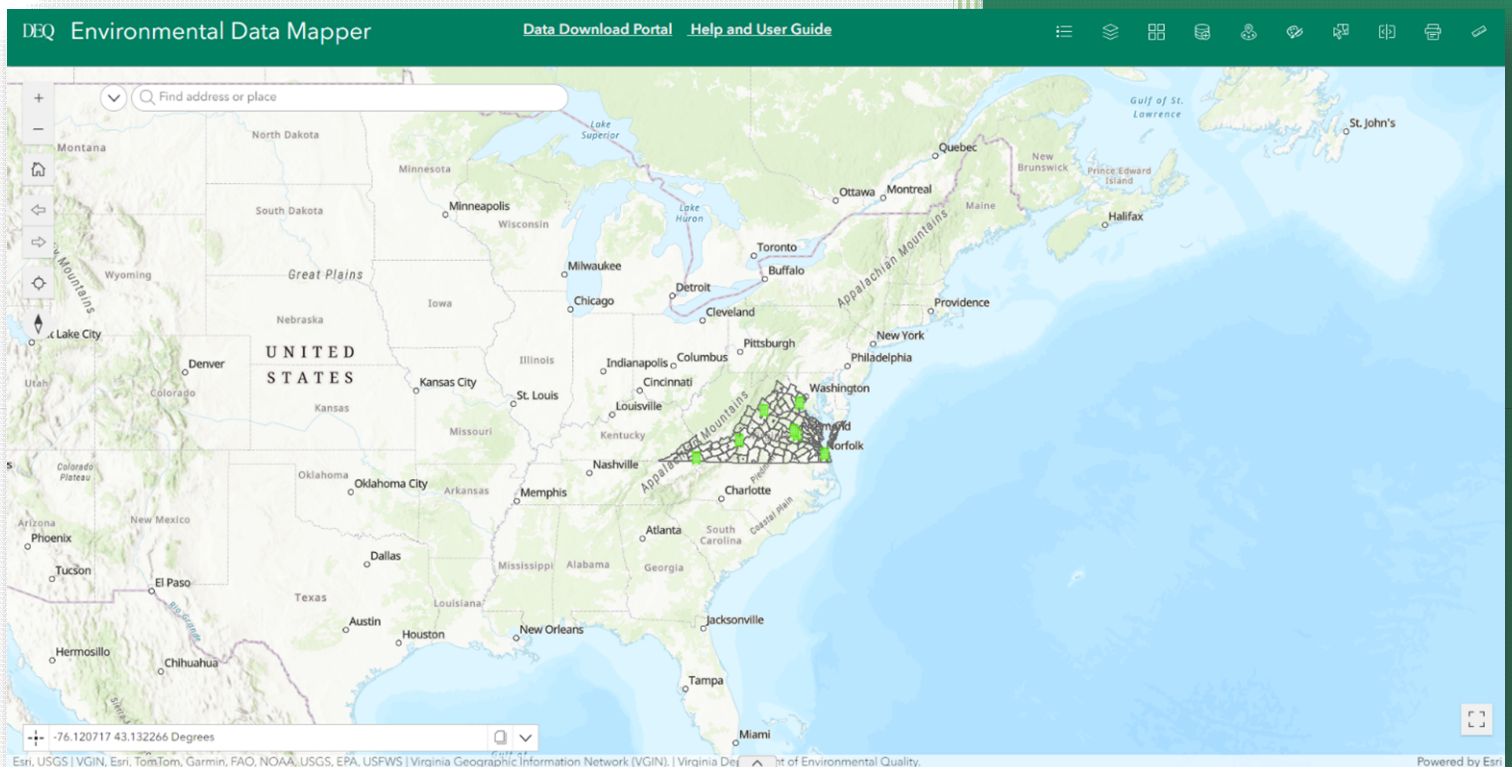


2025

Environmental Data Mapper User Guide - Tools Overview



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EDM General Information

The Environmental Data Mapper combines data provided by Virginia Department of Environmental Quality as well as commonly used Datasets from the Environmental Protection Agency (EPA), Virginia Geographic Information Network (VGIN), US Army Corps of Engineers and others. This application allows for easy access and analysis of our data in combination with other data sets. The EDM will change and be enhanced over time as new tools and data sets become available.

Interface Navigation/Basic Usage

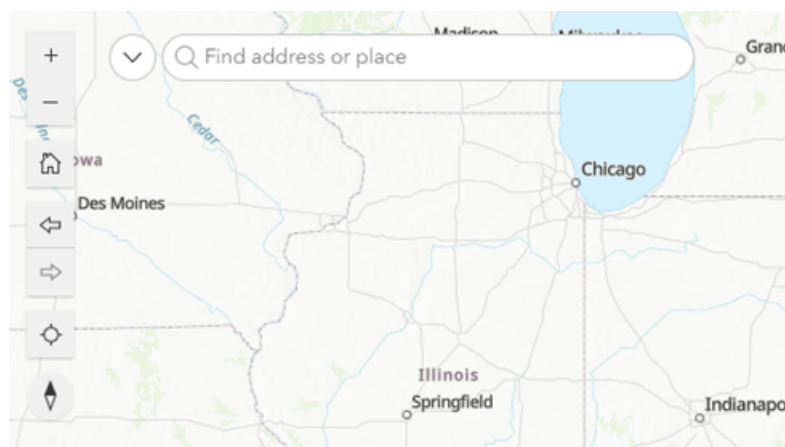
When you first open the app, you will see the default disclaimer that covers our data accuracy and standards, and liability statements. You can click “I agree” to accept those stated terms and conditions.

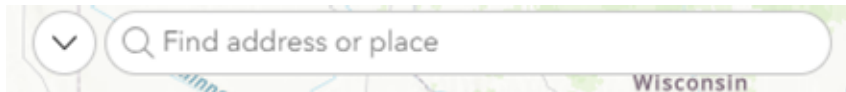


The top of the app in the header there are two links. One is to our open data portal, and one is to the Help and User Guide information where you can find more links to helpful documents.

Map Tools Overview

Top Left of Application





[Search Bar](#) – Search for individual geospatial locations.



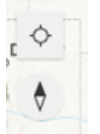
[Zoom](#) – Zoom in and out of the map.



[Home](#) – Revert to default zoom extent.



[Extent Navigation](#) – toggle between previous extent or the next.



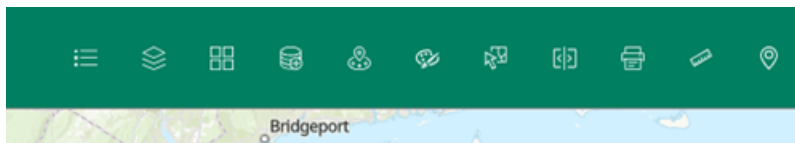
Bottom of Application

[Table](#) - Attribute table will open when the upwards arrow is selected at the bottom of the page.



Top Right of Application.

Additional widgets can be selected at the top banner of the application.



[Legend](#)



[Map Layers](#) – When selected will show a pop up of all layers within the map.



[Basemap Gallery](#) – Change the basemap on the application



[Add Data](#) – Add data from local machine, url, or portal content. When adding shapefiles the data needs to be zipped and select “All Files” from the Windows Explorer pop up.



[Near Me](#) - Allows you to find and analyze features within a specified distance of a defined location.



[Draw](#) – Create a temporary drawing on the map.



[Select](#) – Select features on map.



[Swipe](#) - Allows you to compare layers within the map.



[Print](#) – print a layout of the current extent of the map

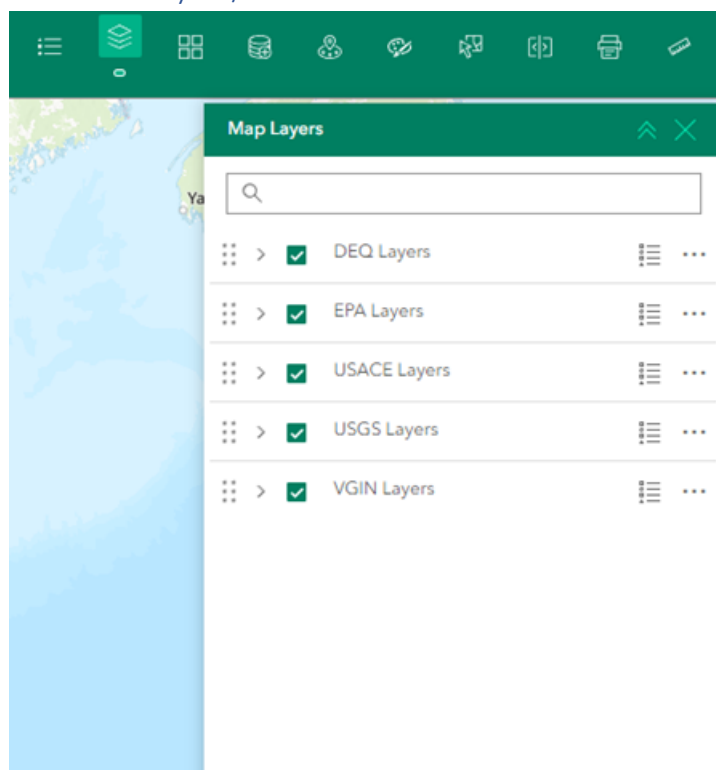


[Measurement](#) - Calculates distances, perimeters, and areas in web maps



[Tribal contacts](#) - Lookup contact information for tribal consultation

Layers/Data within the EDM



This list of layers will change over time as new layers become available or as a layer becomes no longer relevant.

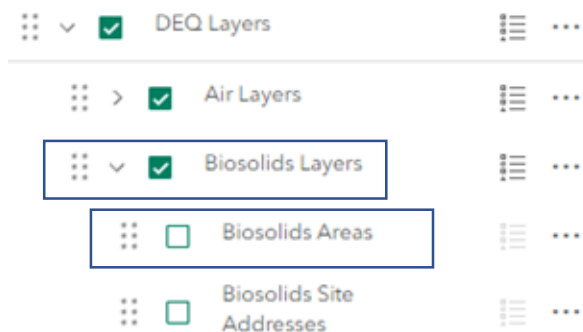
DEQ Data Layers:

The data that populates these layers come from our [DEQ GIS Rest Endpoint](#)

External Data Layers:

EPA, USACE, USGS, and VGIN

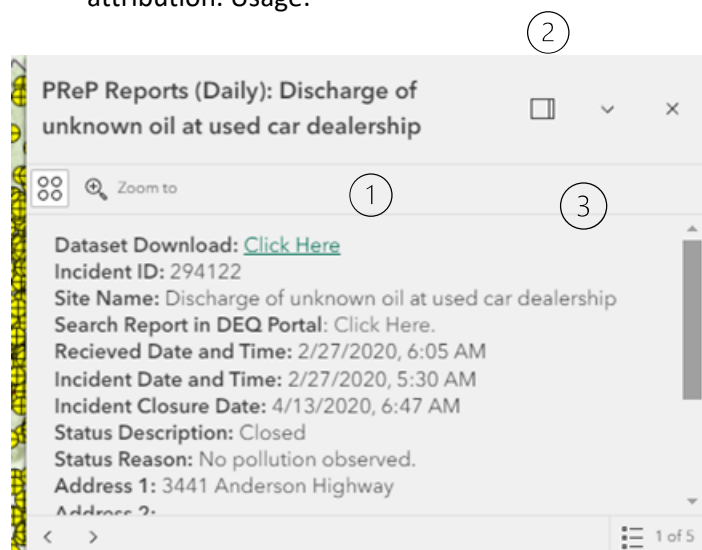
To turn layers on open the Group Layer dropdown with the arrow and check the empty boxes



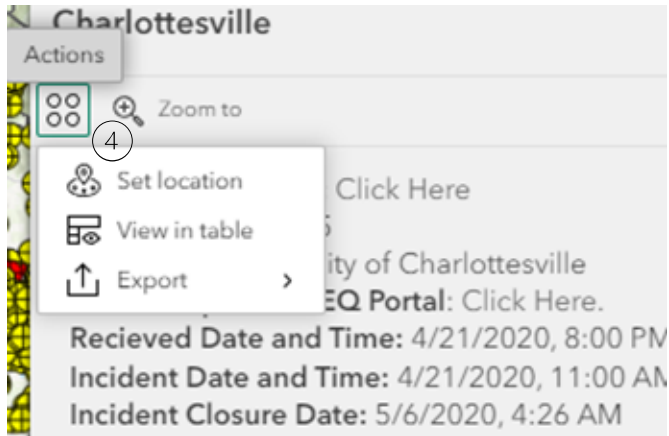
Feature Popups

These are the predominate way to get data out of the environmental data mapper outside of the attribute table. Information captured in the pop up is dependent on the layer that you are viewing. DEQ and External Data geospatial layers all support pop ups.

For layers that you have turned on you can select a Record and the pop up will show some basic attribution. Usage:



1. **Dataset Download** will take you to our open data portal to download data for that layer.
2. Dock the pop up to the side of the application.
3. Click the list icon at the bottom, you have more options to view additional selected features from a list view.



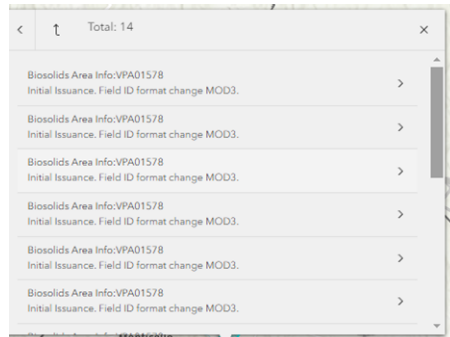
4. Actions:

- Set the selected feature to the location for the near me widget to find information about DEQ data around this point
- View in Table. View this features attributes in the attribute table
- Export. Export this feature to JSON,CSV, GeoJSON, or ArcGIS Online Item

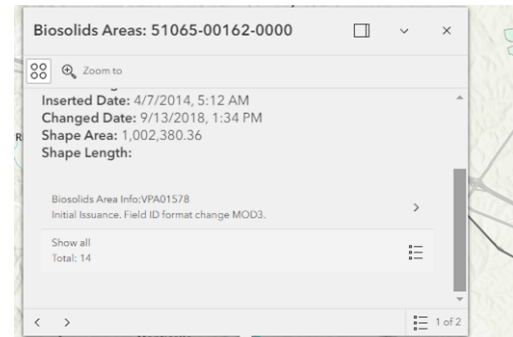
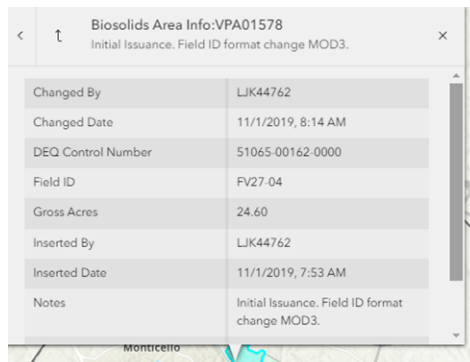
5. Some of the datasets have related tables.

- See the bottom of the pop up for these tables

b. Select show all to view related records



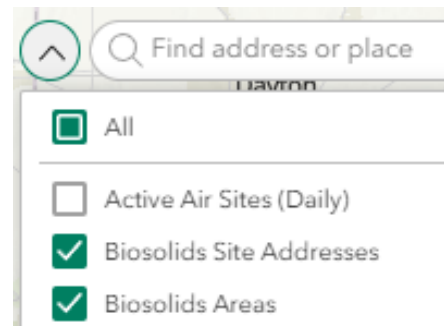
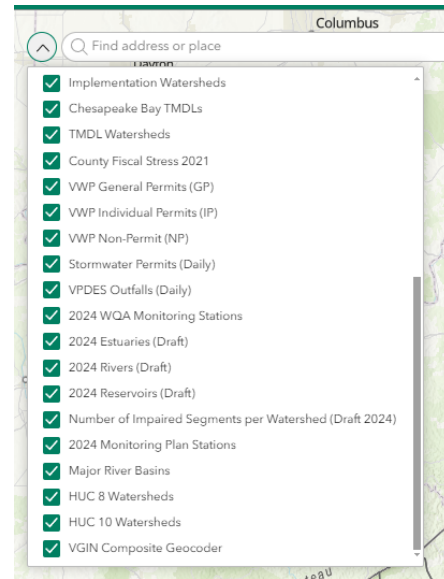
c. Select a record to view information



Searching for Records

Two main options for searching for a record

1. Zoom to a location if you are familiar with the area
2. Search Widget
 - a. The search widget consists of a Dropdown and search icon
 - b. The Dropdown shows most of the layers in the layer list that you can use to search
 - c. Toggle the search options on and off with the check box
 - d. **VGIN Composite Geocoder** – uses VGIN geocoder service. You can enter the address and city to search 911 address locations or enter Latitude, Longitude separated by a comma.
 - e. **Layers** - Can search for unique Identifier in different layers. The search field will show the unique identifier the search will be looking for. Examples:
 - i. Biosolids Area – DEQ Control Number

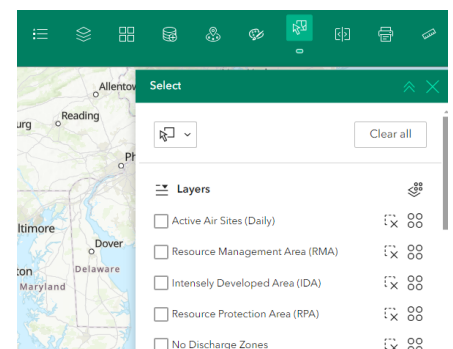


Selecting and Exporting Records

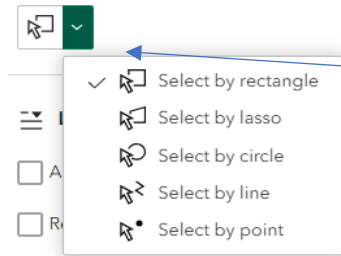
The tool opens with a list of layers that is the same as in the Map Layers Widget.

By default, the layers in the selection pane are turned on when you turn on layers in the Layers List Widget.

- Any layer you wish to select, if not already checked on, will need to be checked on.
- If you don't want a layer to be selectable uncheck that box in the layer list of the Select and Export Features Widget



Select

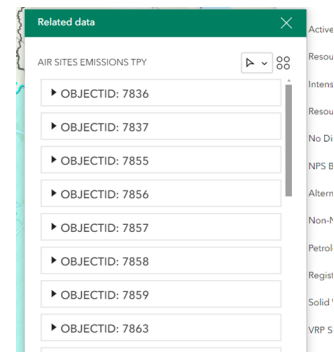
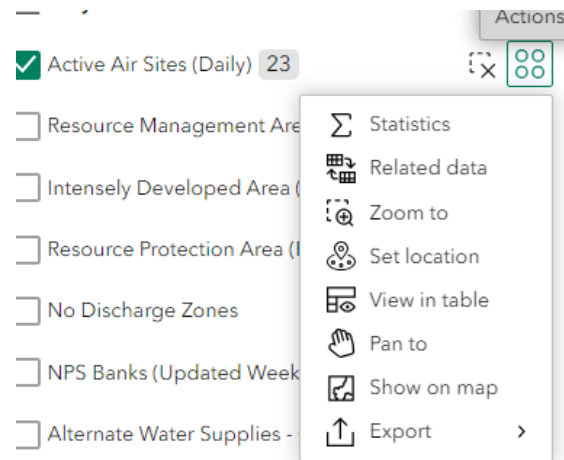


The drop down shows the different select by options

Click the 4 circles next to a layer and there are variety of actions you can perform with your selection

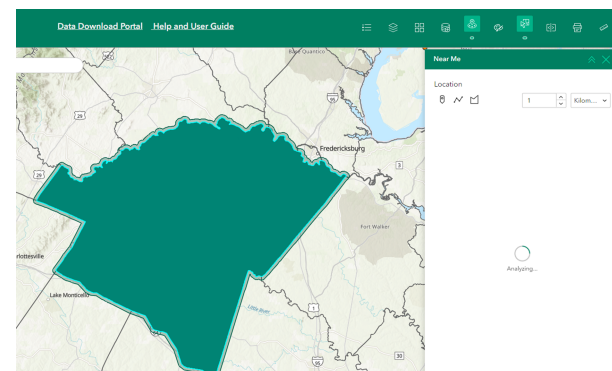
Statistics - shows summary statics for the data

Related Data – If the item has a related records table, you can view all the selected related data



Zoom to – zoom to the selected features on the map

Set location – If you **select only one** feature, that feature can be passed to the **Near Me** tool as the location of interest. Jump to [Near Me Widget](#) for more details.



View in Attribute Table – will show those selected feature in the attribute table

Export-pulls all the attribution and saves to a csv, JSON,GeoJSON file for those selected features

- Export to item - if you have an ArcGIS Online account you can export to item in your content



View in Attribute Table – will show those selected feature in the attribute table

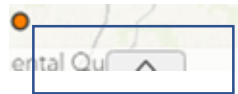
Clear selection - will clear those selected features



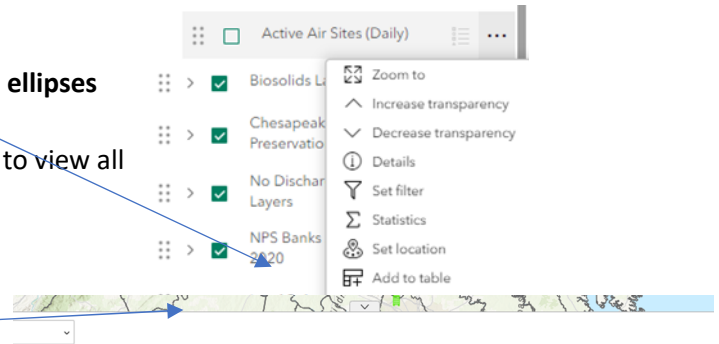
Attribute Table Widget and Filtering

Two ways to access the attribute table widget

1. Go to the layer you wish to look at and click the **ellipses** and click **Add to Table**
2. Click the **up arrow** on the bottom of the screen to view all layers in tabs of the attribute table



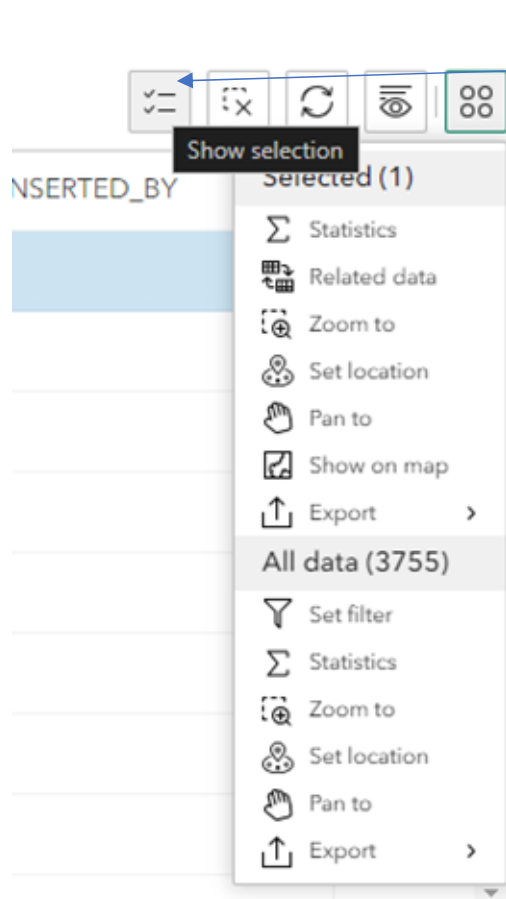
You can click and drag to expand and shrink the table



ID_DA...	Classification	FAC_L_ADDR_1	FAC_L_CITY	FAC_L_STATE
	Synthetic Minor	11352 Virginia Precast Rd	Ashland	VA
11:28 AM	True Minor	7209 W Broad St	Richmond	VA
	Major/Potential Major	15801 Woods Edge Rd	Colonial Heights	VA
	True Minor	6750 Richmond Rd	Amelia	VA
	Synthetic Minor	8818 Church Street	Keysville	VA
	Synthetic Minor	501 Golden Eagle Dr	La Crosse	VA
	Synthetic Minor	2135 Philpott Road	South Boston	VA
	True Minor	986 South Ox Road	Edinburg	VA

The down arrow shows all the layers in a nice dropdown format so you can select a layer to show in the table.





Options for Selected

Show Selection

The attribute table will show only those records that are selected

Statistics

shows summary statics for the data

Related Data

○ If there is a table of data related to the record selected in the attribute table, you can click this option to show data from a related table

Zoom to:

Select a record in the table and click zoom to and it will zoom to that records location in the map

Set location – If you **select only one** feature, that feature can be passed to the **Near Me** tool as the location of interest. Jump to [Near Me Widget](#) for more details.

Pan to

Center map on selection at current zoom extent

Show on Map

Zoom to the record on the map

Export

Export-pulls all the attribution and saves to a csv, JSON,GeoJSON file for those selected features

- Export to item - if you have an ArcGIS Online account you can export to item in your content



Options for All data

Set Filter

Filter the data based on expressions

- Select + **Add**
- Choose a single clause or a set of clauses
- Choose a field to filter on
- Select how you want the equation to work
 - Ex. Is, is not, is blank, etc.
- Enter the value in the field
 - You can set the input type for this box to be **Value**, **Field**, or **Unique**
 - **Value**
 - the user enters the known value in the box.
 - Warning- with this option if you do not accurately spell or enter the correct number the attribute table will likely return empty or with incorrect values
 - **Field**
 - This will return in the attribute table values in one field that match values in another field
 - **Unique**
 - This is the most commonly used filter option
 - Unique will give you a dropdown of distinct values found in the field you are filtering on

The top screenshot shows the 'Set filter' dialog box for 'Active Air Sites (Daily)'. It has a toggle switch and an 'Add' button. Below the toggle, it says 'No clause. Please add one.'

The bottom screenshot shows the same dialog box with a filter clause added. The clause is '123 PLA_ID' is 'is' '- All -'. The input type is set to 'Value'.

Example: Filtering 2024 Monitoring Plan Stations

- In this example the 2024 Monitoring Plan Stations layer is filtered based on records where the Field Program Description is the **Unique** value Algae Monitoring

The screenshot shows the 'Set filter' dialog box for '2024 Monitoring Plan Stations'. It has a toggle switch and an 'Add' button. Below the toggle, it says 'No clause. Please add one.'

The filter clause is 'ABC PROGRAM...' is 'is' 'Algae Monitoring'. The input type is set to 'Unique'.

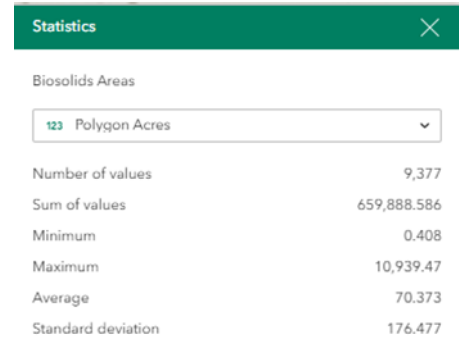
A dropdown menu is open showing the 'Select source type' options: 'User input', 'Field', and 'Unique' (which is selected).

Statistics

Run statistics on a field that contains integers in the table.

Ex. Biosolids Areas:

Polygon Acres



Statistics	
Biosolids Areas	
123 Polygon Acres	
Number of values	9,377
Sum of values	659,888.586
Minimum	0.408
Maximum	10,939.47
Average	70.373
Standard deviation	176.477

Zoom to:

Select a record in the table and click zoom to and it will zoom to that records location in the map

Set Location

Pass location to the Near Me widget

Pan to

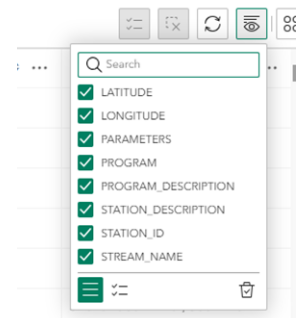
Pan map to center on the location of the data

Export

Pulls all the attribution and saves to a csv, JSON,GeoJSON file for features in the table

Show/hide columns

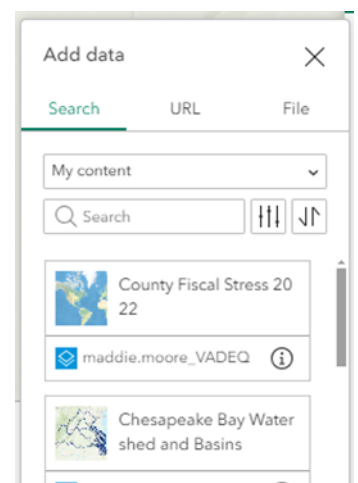
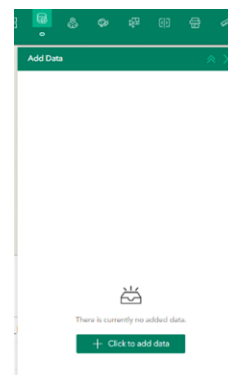
This allows you to hide columns you don't want to see in the attribute table. Simply uncheck the box to hide columns.



Adding Data to the EDM

Search

- Add data from ArcGIS Online
- Some of the layers that are added from ArcGIS Online will require you to have an ArcGIS Online login to access

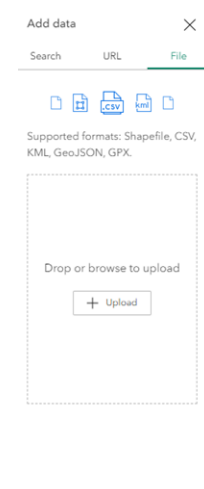


URL

- Add Data from a URL Service
- Paste URL in the URL blank and click add.

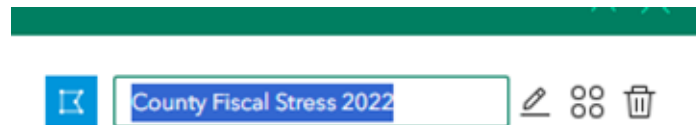
File

- Upload a file from your local computer in the following formats:
 - Shapefile
 - Shapefiles must be in a zip folder
 - CSV
 - KML
 - GPX
 - GeoJSON



Once a layer is added to the EDM it can be used in many of the other widget tools in the application

Rename the layer with the pencil button:



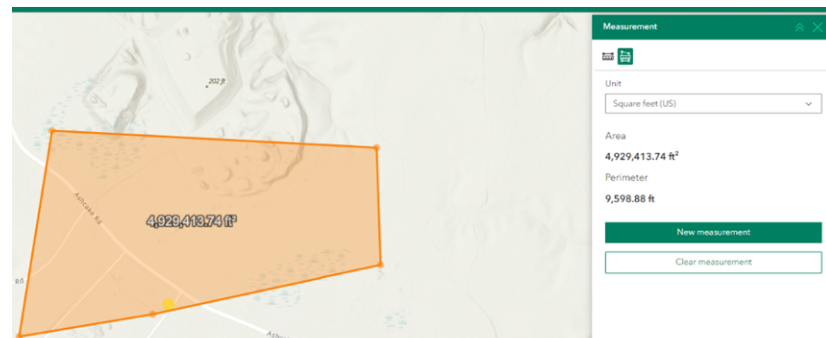
Remove the layer with the trash can

Measuring Distances and Areas

Measure tool is for easy of access to measure distances or areas as well as to get coordinates

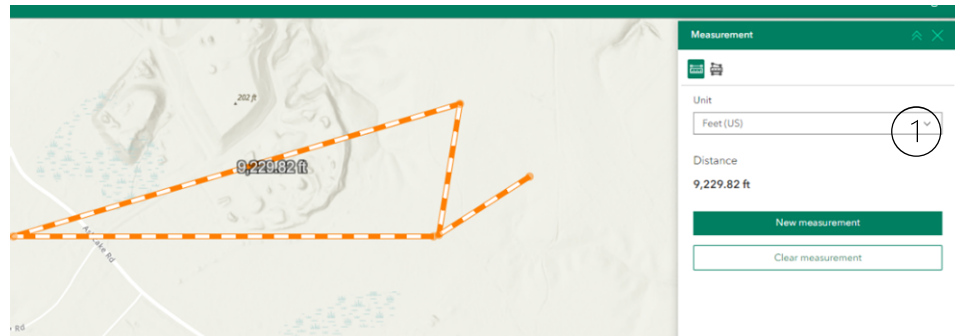
Area

1. Click points to add vertices to define the area you are measuring
2. Double click to complete the area for measurement
3. Defaults to sq feet
4. Change the measurement style by clicking the drop down
5. Clear measurement by clicking the clear measurement button



Distance

1. Click points to add vertices to define the length you are measuring
2. Change the measurement style by clicking the drop down
3. Clear by clicking the clear measurement button



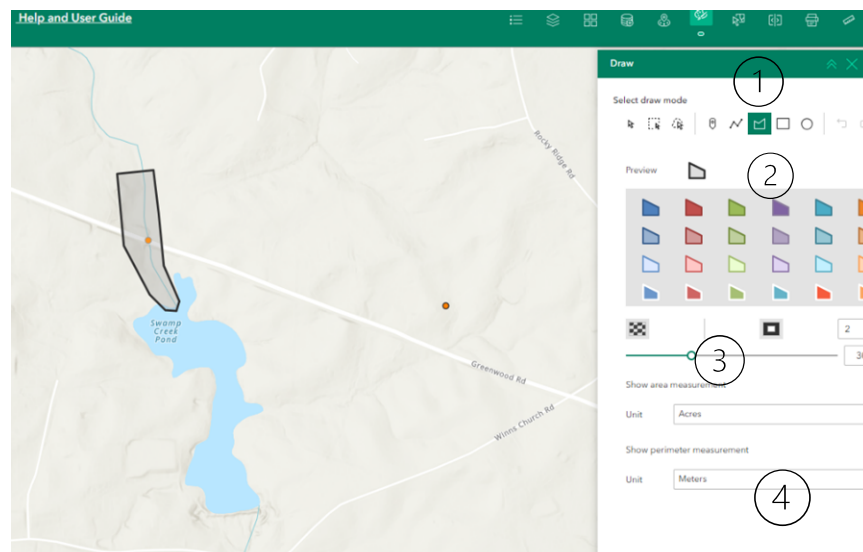
Draw

Use this tool for temporary markups to the map that can be seen when using the print map widget

There are a multitude of Draw tools

This tool can be used to quickly draw up a suspected spill area using the polygons, arrows, and text markup options.

1. Select Draw Mode
2. Change the symbology style
3. Change the size and transparency
4. Show measurements



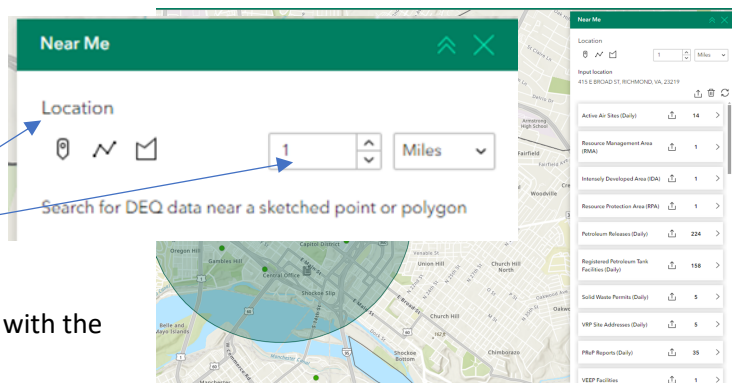
Spatial Analysis, Buffers, etc

Near me Widget

Quickly figure out what is in a close proximity to a feature or a location

Pass an input location and Buffer Distance

- The default is set to 1 mile
1. The layers in the list are those that intersect with the buffer/shape you created



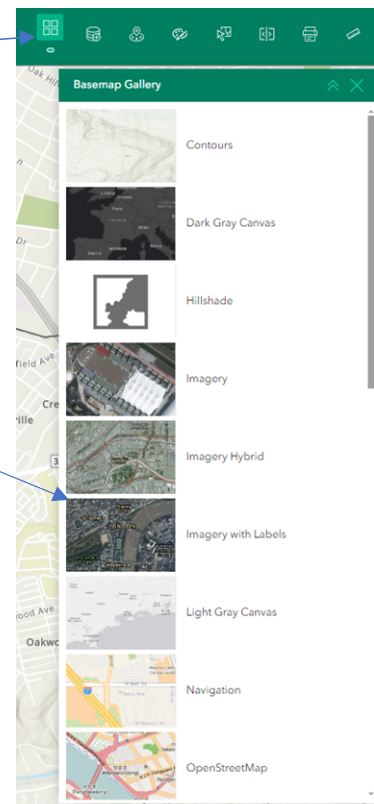
- a. Clicking > will show the records for that layer in your area of interest:
2. The export button will download a csv with the records that were included in the nearby analysis for that tab

Active Air Sites (Daily)	14	>
Verizon - Grace Street	0.19 mi	>
Moizelles Cleaners Inc	0.22 mi	>
VDCLS - Richmond	0.27 mi	>
Philip Morris USA Inc- CRT - Jackson St	0.35 mi	>
VCU - MCV Medical School	0.37 mi	>
VCUHS - North 10th Street Facility	0.43 mi	>
Federal Reserve Bank of Richmond	0.46 mi	>
MCV Sanger Hall	0.49 mi	>
Afton Chemical Corporation	0.53 mi	>
VCUHS - North 13th St	0.55 mi	>
VCU	0.7 mi	>
VCU - Steam Plant	0.74 mi	>
Domestic Linen Supply Co Inc	0.8 mi	>
Aqua Clean Environmental of Virginia	0.84 mi	>

Basemaps

The default Basemap is the ESRI Topographic Basemap. It shows street information as well as hillshade

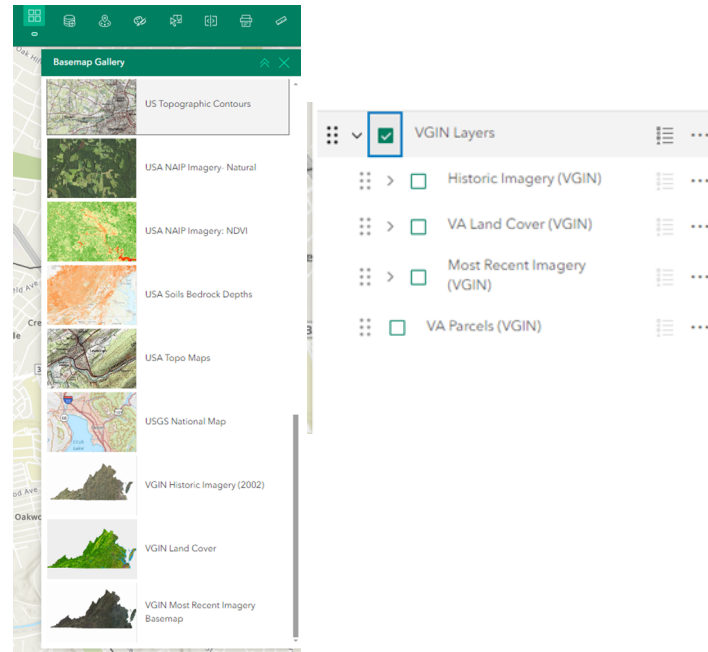
Imagery Hybrid is the one most like google maps. Be aware - this imagery is older in some areas



To obtain newer imagery you can use the VGIN basemaps or turn them on as layers from the layer list:

Under **VGIN Layers**

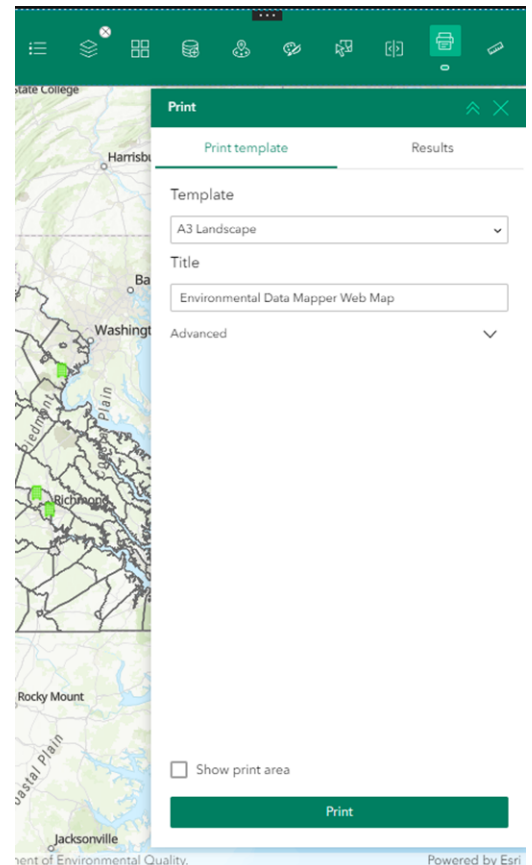
- Most Recent Imagery (VGIN)
 - Leaf off Imagery
 - Taken typically during the winter/spring
- Historic Imagery 2002(VGIN)
- NAIP Imagery (USDA)
 - Leaf on Imagery
 - Taken typically in the summertime
- Virginia Land Cover Data (VGIN)
 - What type of landcover is in the area
 - Things like Impervious Surface, Water, Brush



Printing

Easily export and print map data

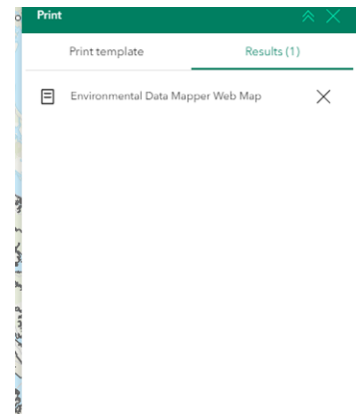
1. Print Widget on the right with the printer icon
2. Loads with default options you can change:
 - **Title**
 - You can input a custom title if you would like
 - **Template**
 - Change this to change the size or orientation of the output map
 - **Format**
 - Output is PDF



Advanced options

3. **Map Printing extents**
 - a. **Set map scale**
 - Force the output map to a particular scale instead of the default map scale or map extent
 - This would be useful if you need to do measurements
4. Use the boxes to turn on and off legend and north arrow
5. **Scale bar unit**
 - If you need the scalebar under the map to be in a different unit

6. Print Quality – change the dots per inch for a better resolution print
7. Show print area –
 - a. Show in the application the area that is to be printed.
8. Print
 - a. After you hit print the output will show on the Results page



Swipe/Swipe Layers

Requires a particular set of layers turned on in order for it to work properly

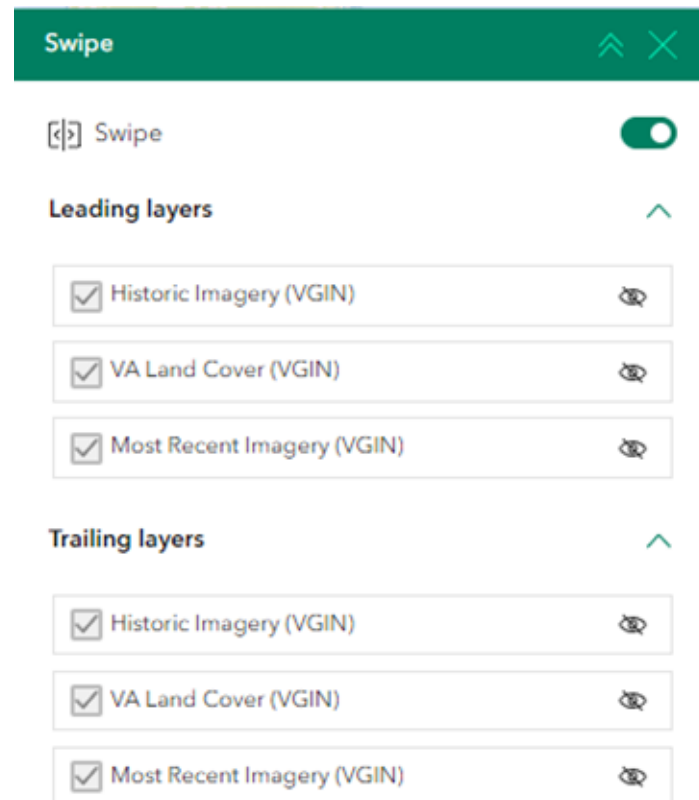
These are the aerial imagery layers under the VGIN Data Layers Group. Typically, you would use the historic and recent imagery to compare the difference in the area.

Under **VGIN Data Layers** in the **Map Layers**:

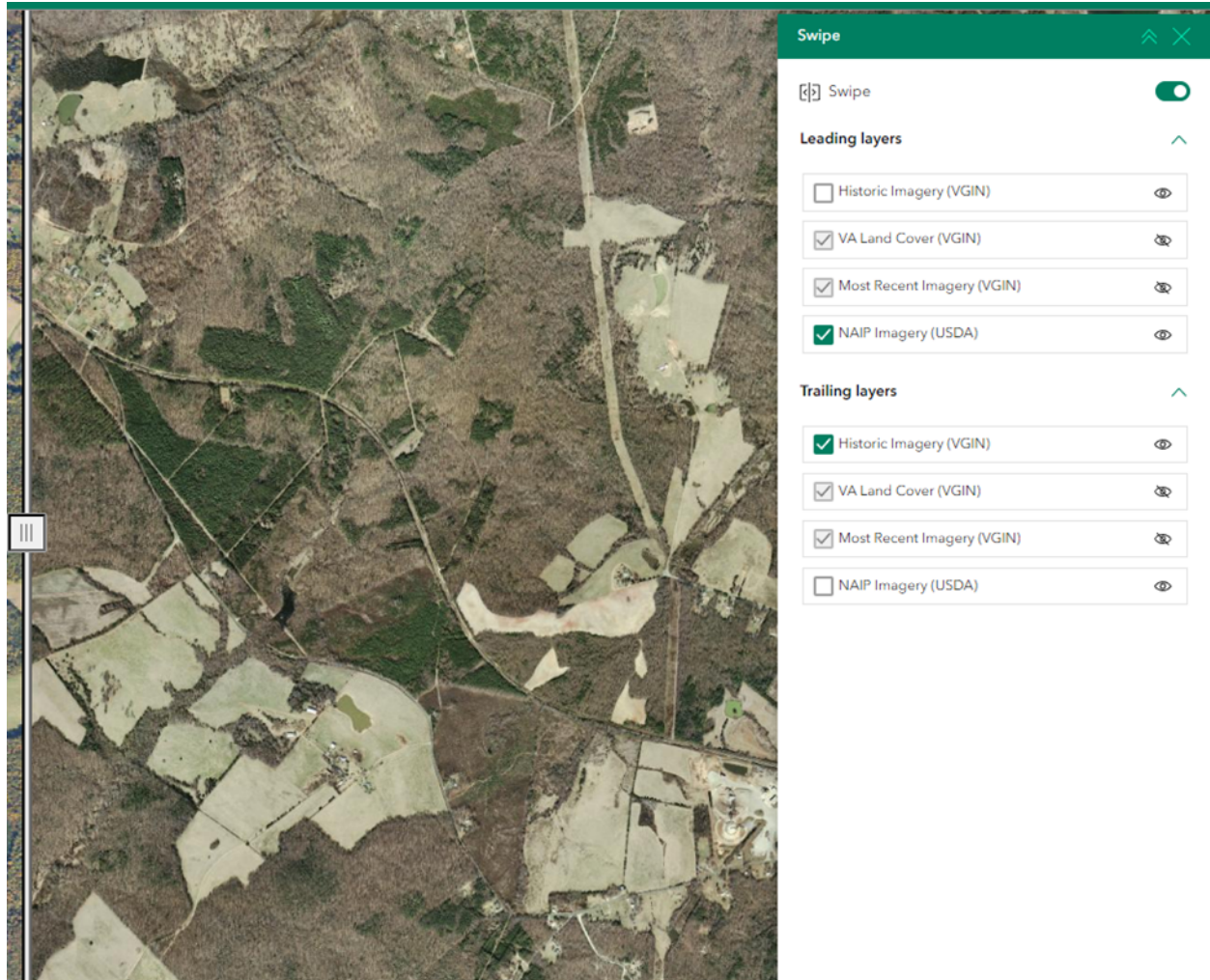
- Most Recent Imagery (VGIN)
 - Leaf off Imagery
 - Taken typically during the winter/spring
- Historic Imagery 2002(VGIN)
- NAIP Imagery (USDA)
 - Leaf on Imagery
 - Taken typically in the summertime
- Virginia Land Cover Data (VGIN)
 - What type of landcover is relatively in the area
 - Things like Impervious Surface, Water, Brush

The swipe tool is located in the top right of the application:

- **Swipe**: toggle this on to see the swipe widget appear on the map
- **Leading Layers**: This is the layer on the left side of the swipe widget
- **Trailing layers**: This is the layer on the right side of the swipe widget



You will need to toggle the layer to visible using the eyeball and then turn leading and trailing layers on and off depending on which one you would like leading and trailing.



[Tribal Contacts Lookup](#)

The Tribal Contacts Lookup tool is in the top right of the widget bar. Used for finding the federally recognized tribes within their traditionally tribal lands in the state of Virginia used to look up the relevant contact(s) for permit consultation. Tribe layers can be turned on/off one at a time via DEQ Layers -> Reference and Admin Layers -> Tribal Contacts.

- Turn on/off layers bookmarks
 - Turn On all Tribal Contacts Layers to see on map
 - Turn Off all Tribal Contacts Layers to remove from map
- Search
 - Search an address in Virginia
 - Use the Input Location to Search Tribal Contacts by drawing a point, a line, or bounded area
- Location Options
 - Export – each tribe included in the over
 - Delete
 - Refresh
- Contact Information
 - Tribal Office address and phone number information
 - Tribal contact name and email
 - Tribal contact notes
 - Locality that the site is located in sites that cross multiple localities will display the tribal contacts for each locality. Scroll to see all relevant tribal contacts.

