GIS-Based Plume Data Web Portal

Prepared for

Alabama Department of Transportation

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by

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Abstract: A GIS-based online portal was developed to store, analyze, and display data from multiple sources pertinent to the ALDOT Coliseum Boulevard site in Montgomery Alabama. These sources comprise various consultants involved with the site including geotechnical companies, water testing labs, law firms, and management personnel from ALDOT/ADEM. The goal of this portal was to centralize information into a single location for easy access by all of these groups while also consolidating a number of activities in relation to data collection, verification, and preparation. The culmination of these goals resulted in a data-driven web map. The web map is able to display the numerous monitoring points and regions related to the site. On selection of these locations, the web map presents associated data and documents for download. In a similar manner, the property owner's parcels associated with the site can be selected and legal documents relating to that property displayed. For more robust data retrieval, there are several tools capable of querying data based on multiple locations, location types, and constituents. The Search Documents tool can perform similar functions for ascertaining files based on their type and associated location. Any data and documents can be uploaded to the portal through one of two easy to use tools. The Upload Documents tool allows users to upload a file and input related information into several fields for future acquisition. The Import Data tool accepts comma separated value sheets for well specific data like lab testing and groundwater elevation data. The lab data uploaded to the site is put through a verification process before final import to the database. Several other layers can be toggled on and off on the map as well such as groundwater velocity and elevation contour maps. These features contribute to a streamlined and unified environmental site management process.

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Contents

Table of Figures

Executive Summary

A GIS-based online portal was developed to store, analyze, and display data from multiple sources pertinent to the ALDOT Coliseum Boulevard site in Montgomery Alabama. These sources comprise various consultants involved with the site including geotechnical companies, water testing labs, law firms, and management personnel from ALDOT/ADEM. The goal of this portal was to centralize information into a single location for easy access by all of these groups while also consolidating a number of activities in relation to data collection, verification, and preparation. The culmination of these goals resulted in a data-driven web map. The web map is able to display the numerous monitoring points and regions related to the site. On selection of these locations, the web map presents associated data and documents for download. In a similar manner, the property owner's parcels associated with the site can be selected and legal documents relating to that property displayed. For more robust data retrieval, there are several tools capable of querying data based on multiple locations, location types, and constituents. The Search Documents tool can perform similar functions for ascertaining files based on their type and associated location. Any data and documents can be uploaded to the portal through one of two easy to use tools. The Upload Documents tool allows users to upload a file and input related information into several fields for future acquisition. The Import Data tool accepts comma separated value sheets for well specific data like lab testing and groundwater elevation data. The lab data uploaded to the site is put through a verification process before final import to the database. Several other layers can be toggled on and off on the map as well such as groundwater velocity and elevation contour maps. These features contribute to a streamlined and unified environmental site management process. The portal is available at http://plume.caps.ua.edu.

1.0 Introduction

The Coliseum Boulevard Plume refers to an area in Montgomery, AL. The main plume constituent of concern is Trichloroethylene (TCE), but daughter-products and other chlorinated hydrocarbons are also present. ALDOT used TCE in asphalt testing and, as was standard at the time, disposed of the spent TCE into sewers. Failures in the sewer lines allowed the constituents to escape into the immediate groundwater resulting in the plume observed today. ALDOT has investigated and managed the plume under the oversight of the Alabama Department of Environmental Management (ADEM), the U.S. Environmental Protection Agency (EPA), and the Alabama Department of Public Health (ADPH).
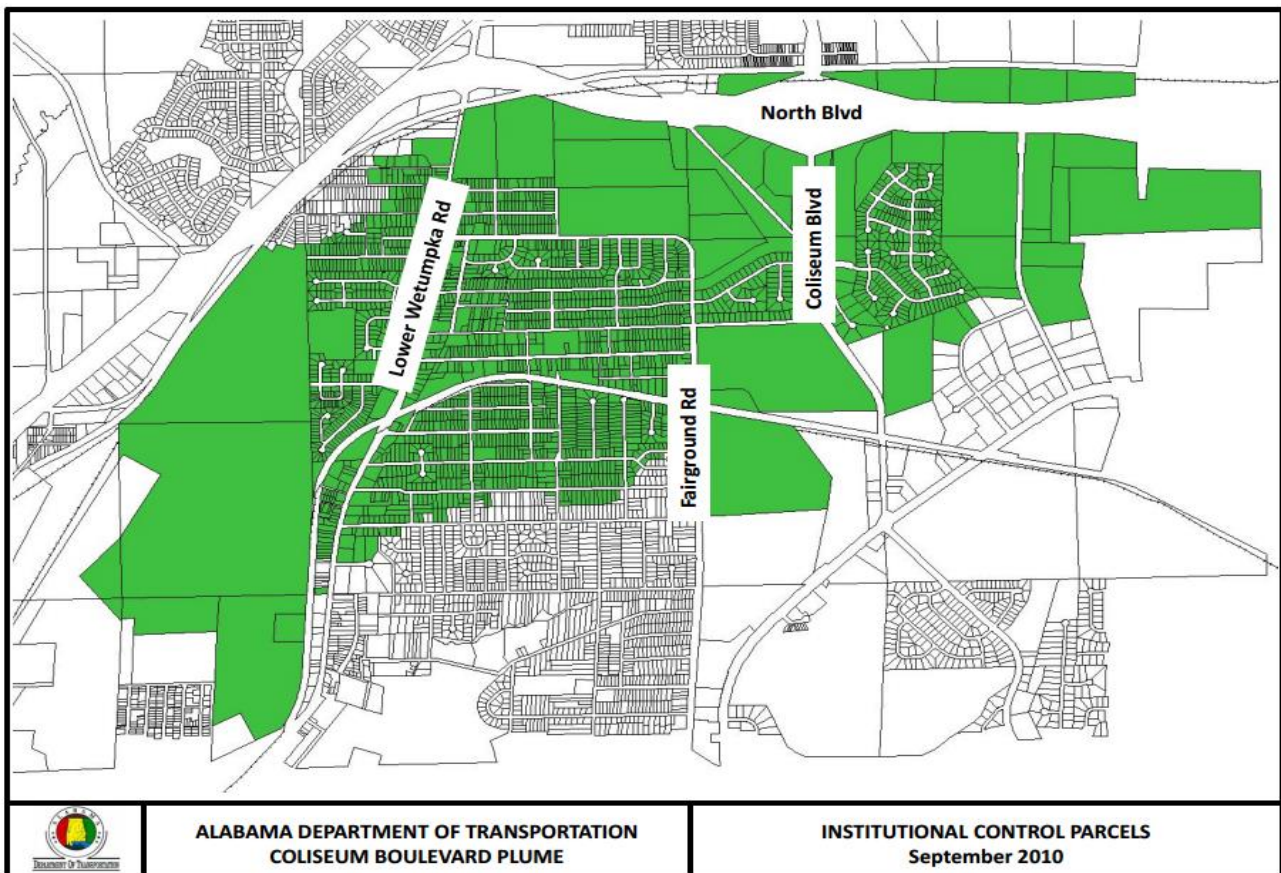

Figure 1. Coliseum Boulevard Plume Property Boundary Extent

The initial investigation's results sparked an expansion of activities involving further investigation as well as several remedial projects. Two of these projects remain a part of monitoring practices today, namely the Southwest Treatment Area (SWTA) and Low-Lying Area. In these areas, wetlands were constructed to aid in the monitoring of surface water. These outfall areas and the remainder of the city within the Institutional Control Boundary (ICB) contain the majority of activities on the site (though some minor investigative work has been performed outside of this boundary). Present day activities are described in ALDOT's "Long-

Term Monitoring Plan" and mainly consist of normal monitoring procedures. These procedures include: ICB groundwater and surface water sampling, data verification and storage, outfall area inspections, and creation of an annual report detailing activities and results.

To perform these procedures, ALDOT has been working with several outside consultants to monitor the groundwater within the CBP area. These consultants have held responsibilities involving collecting, storing, and managing data and documents as well as producing reports. Dividing these responsibilities was the mandated project management solution at the time of the project's inception and through the years following. In recent time, ALDOT has become responsible for these monitoring oriented tasks.

2.0 Methodology

A conventional and thorough software development process was undertaken to design the Plume Web Portal. Parts of this process included a literature review of past long term monitoring environmental sites (*1,2*), meetings with the project advisory groups, and prototyping of the webmap. After the review and group meetings, key aspects of the site were identified and implemented in a final design. As the website progressed, monthly conference calls were scheduled to confirm the continuing development of the site was within the scope of desired functionality. The key aspects of the site can be viewed from an architectural standpoint in Figure 2 below. The design pictured was realized in the tools and interface of the Plume Web Portal to achieve the goal of simplifying management of the Coliseum Boulevard Plume.
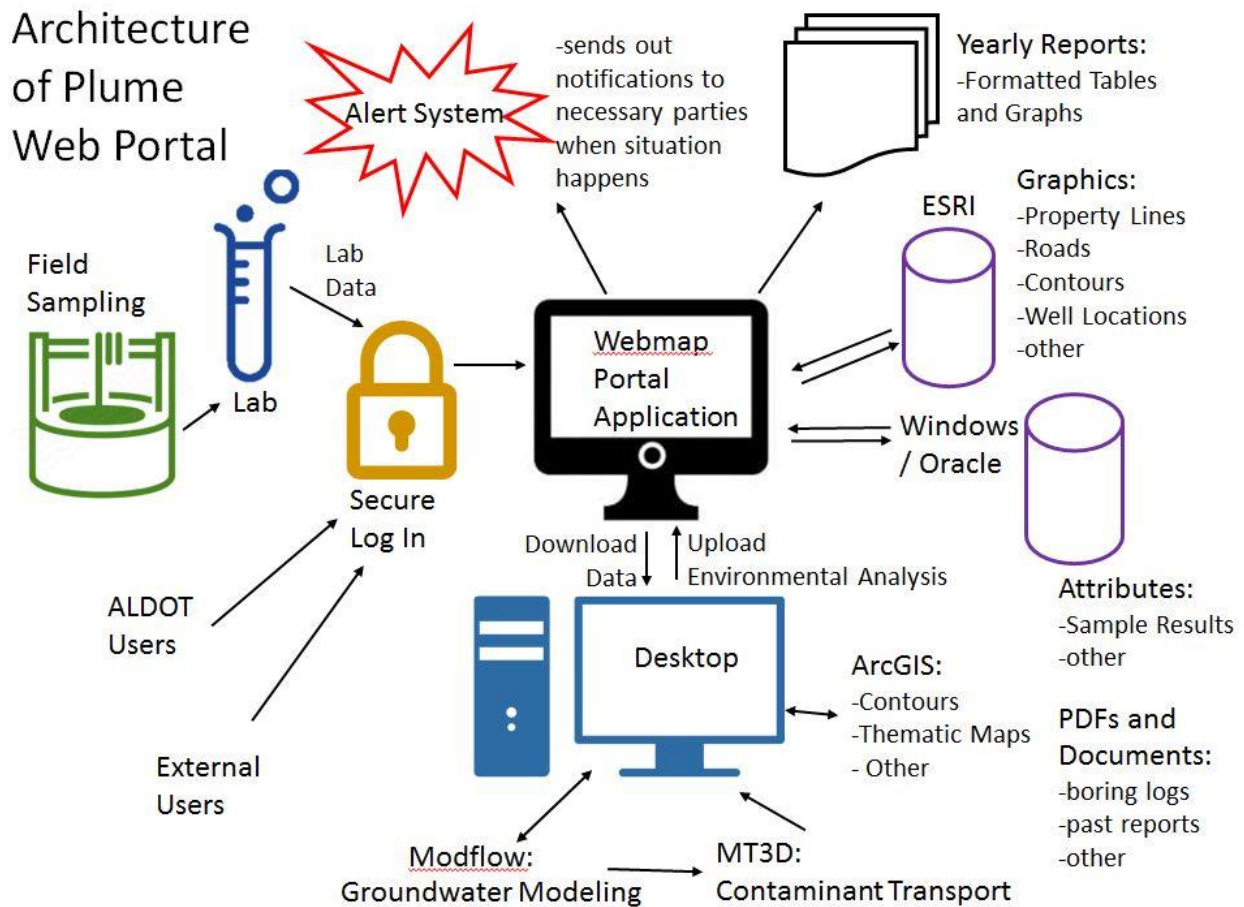

Figure 2. Plume Web Portal Architecture

Plume Web Portal Database

The Plume Web Portal is founded on a relational database designed to store information that can be uploaded online by users with the appropriate site authorization. A visualization of the database is shown in Figure 3. The boxes depicted are the database tables and each contain the parameters used to identify data. Arrows between tables indicate 1:1, 1:many, or many:many relationships between records in the connected tables. Samples and Results_Data are the two tables that increase in the number of records as ongoing long-term monitoring continues. Sample are tied specifically to a Sample ID that is also in each record in the results table. The sampling and investigation locations are defined by their location name and type of location. There are several additional tables used for document and file attachments that are not included **in the Figure 3.**
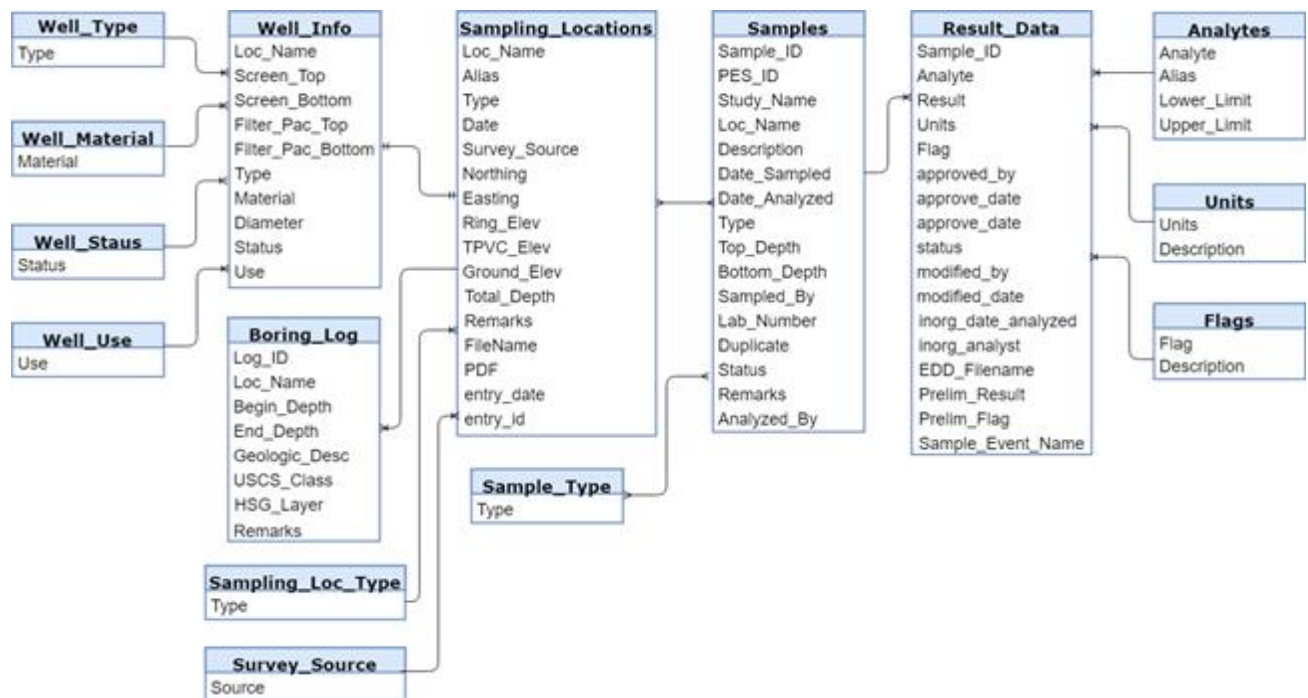

Figure 3. Plume Web Portal table schema with table relationships shown as arrows.

The boundary of the project and sampling locations are spatially displayed in the web portal, as shown in Figure 4. Features and samples can be toggled on or off via the menu on the left-hand side of the portal. This figure also displays parcels and outfalls within the boundary. Monitoring well sample locations are toggled on in Figure 4.
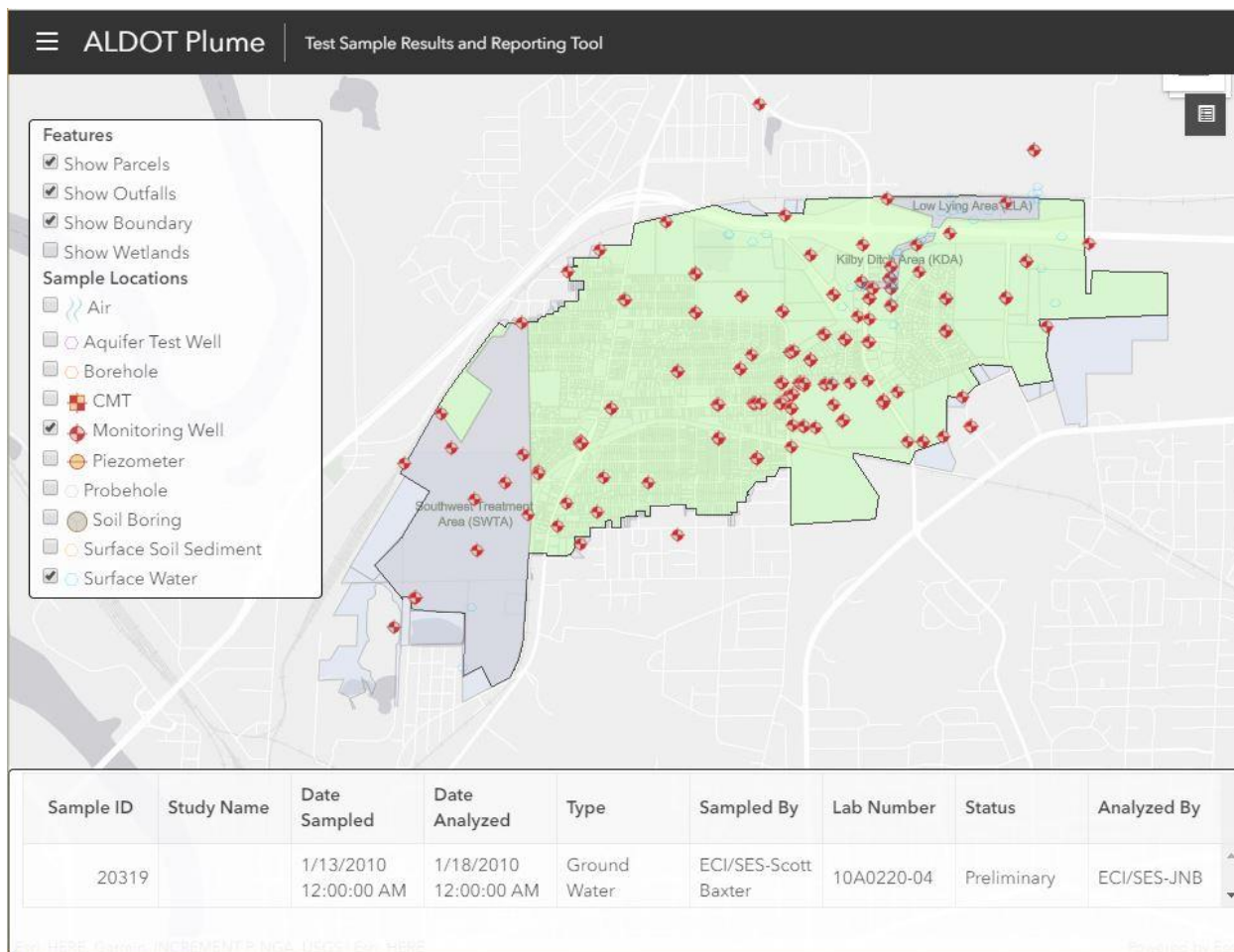
Figure 4. Plume Web Portal default map view showing site boundary, outfall areas, property parcels, and monitoring well points on an ESRI base map (*3*), the sample results grid at the bottom of the screen and the feature toggles on the left.

Plume Web Portal Functionality

The final implementation of the web portal involved numerous simple-to-use tools and web map features to manage data and documents on the site. A thorough explanation and instructions for each of these tools and capabilities can be found in the attached Plume User Guide (Appendix A). The web map's functional displays are tied to the various tools stationed on the site. Standard scroll of the mouse wheel is used to zoom in and out and click and dragging will move the surface of the map. Figure 5 shows a standard pop-up display for an individual sample location's selection. The pop-up gives users a chart logging the TCE concentration and Groundwater elevation over the history of the well. Individual points on these charts correspond to sampling events and upon a point's selection, the associated sample data can be brought up as well. Below the chart, the pop-up lists the various documents that are directly related to that location, most often boring logs. When selecting any location, the corresponding sample results will be listed near the bottom of the page in the samples' display.

Figure 5. Location pop-up window displays key information including location name, type, and a chart of TCE and groundwater elevation levels.

The various locations on the site can be toggled on and off from the features tab docked at the left side of the page. This allows users to check on and off the different sample locations based on their types such as piezometers, monitoring wells, and soil borings. The two outfall areas (Southwest Treatment Area (SWTA) and Kilby Ditch), property parcels, and the plume's boundary can also be toggled on and off in the features tab docked at the left side of the page. Surface water, monitoring wells, property parcels, site boundary, and the outfall areas are on display by default when logging into the web map.

The website's main menu is accessed by clicking the three horizontal lines in the upper left corner of the web portal as seen in Figure 4. The main menu opens and is shown in Figure 6(a). There are a number of tools on the main menu dedicated to the uploading, searching and report generation. The Upload Documents tool, pictured in Figure 6(b), gives users the ability to upload a document into the website and assign the document a series of correlated data for future ability to query. This data might include the type of document, locations that the document is associated with, a date, and a short description.

As shown in Figure 6(c), the Import Sample Data tool allows users to choose and upload a csv file of water sample data for storage in the site database. This tool utilizes a series of steps to verify any lab data being uploaded. The first verification is of data recognition. If a csv is in an improper format then the user will be notified to edit this unrecognized nomenclature. Next

the location of the sample is compared to valid locations already stored in the database. The next verification is for elevated constituent levels. A predefined list of allowable constituent levels for each sample location is stored in the database. If any sample level exceeds these predefined limits, a notification is presented to the uploading user and an email is sent to the appropriate administrative personnel.
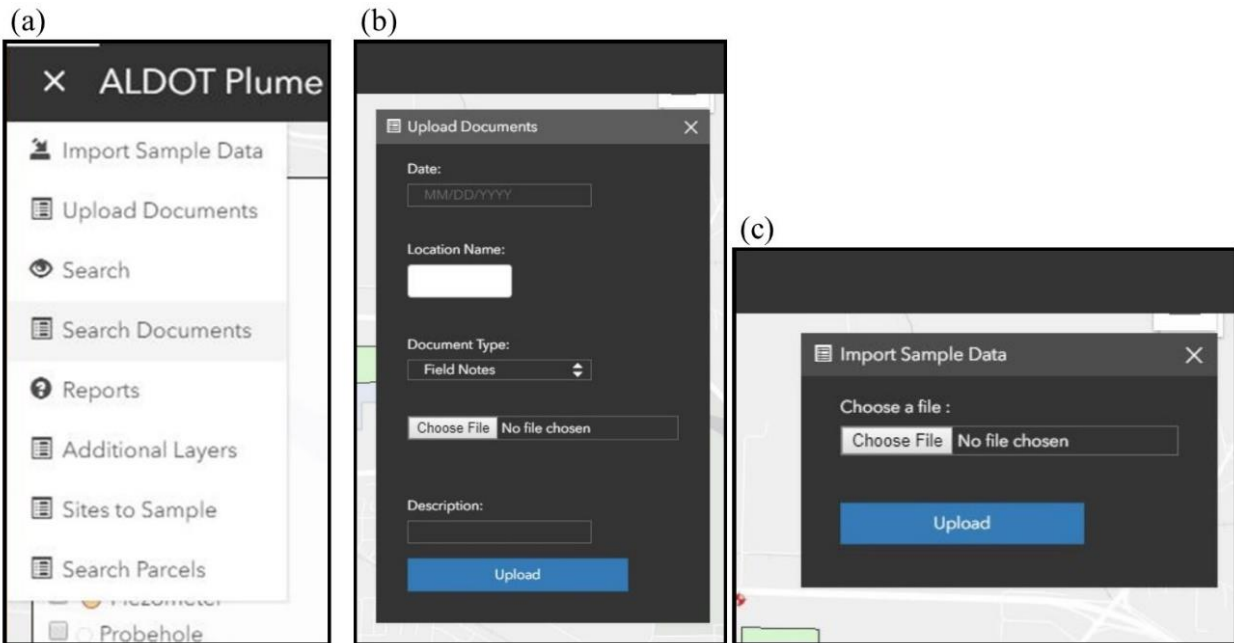

Figure 6(a). Tool Menu enables upload, search, and exporting of information. (b) Upload Documents allows input of the file's associated date, locations, file type, and description. (c) Import Sample Data accepts csv files of lab water sample results.

There are also a series of tools used for searching and retrieving information. The Search Tool gives users the ability to find a specific location and specific sampling event based on that location and a range of dates. Similarly, the Search Document tool can query the documents based on date range, associated locations, document type, and keywords in the description. The Reports tool generates excel sheets through the interface displayed in Figure 7(a). These sheets can include multiple sample constituents for multiple wells within a range of dates all chosen by the user. Through the Annual Reports button on the Report Tool, tables of data included in the annual report are generated in the predefined format used in the annual report. These annual report tables are automatically downloaded for the user.

The Additional Layers function opens in a tab and allows users to toggle on and off numerous Groundwater elevation, TCE concentration, and Groundwater velocity contour layers on the web map as shown in Figure 7(b). The Sites to Sample tool gives users a list of which wells need to be sampled based on their sampling schedule and the date of their last sample results in the site database. The Search Parcels tool allows users to search the many properties within the sire boundary by the Parcel ID and also by parcel address.
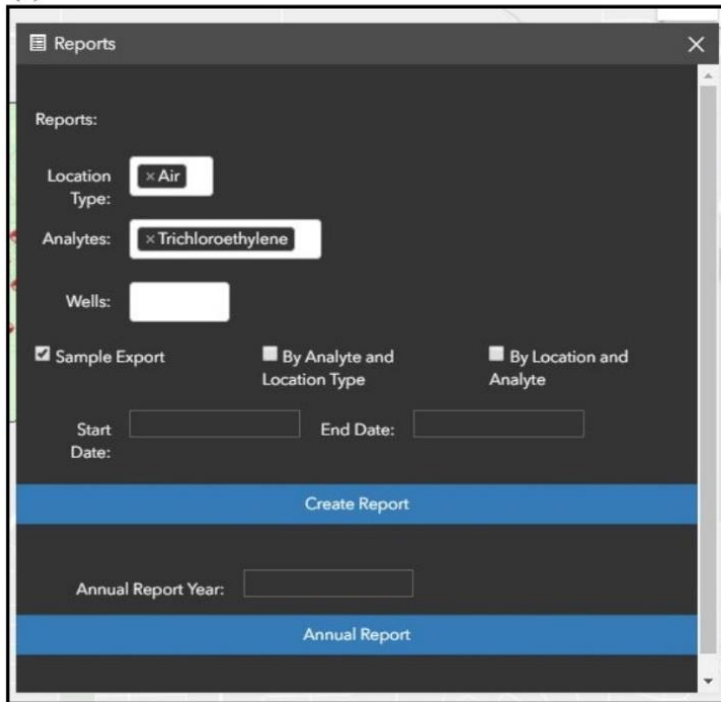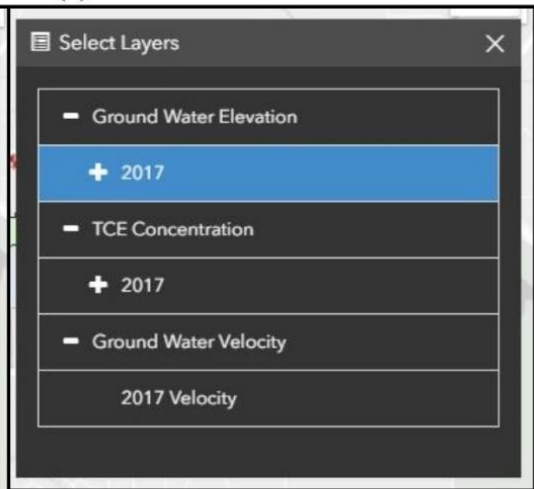
Figure 7(a). Reports Tool allows the export of specific data based on location, location type, and analyte as well as annual report tables and graphs. (b) Additional Layers tab toggles more data-driven layers on the web map

3.0 Results

The Plume Web Portal contains current and historic data as well as historic documents. After a successful testing period where site data will be managed both in the system and using traditional methods, the site will be used as the primary management tool of the Coliseum Boulevard Plume.

The Plume Web Portal was developed and is hosted at the Center for Advanced Public Safety (CAPS) at The University of Alabama. CAPS has organized a number of GIS research projects and has extensive experience developing and maintaining web-based applications. It is expected that the site will require low maintenance and only evolve based on user input and feedback. The site can be transitioned to ALDOT or other service providers if desired.

The Plume Web Portal is an all-encompassing long-term environmental monitoring tool that allows users to upload, store, and retrieve data and documents related to water sampling results, groundwater elevations, and other site duties. The site's verification processes allow the notification of users if invalid data are uploaded or if certain constituents have exceeded their safe limits. The integration of various shapefile layers for sampling locations, groundwater-based contour maps, and property parcels grants the ability to view and access data from a user-friendly web map. Other tools on the site offer users the ability to query data and documents as well as generate reports and charts related to the ongoing performance of the site.

The Plume Web Portal can be utilized by both ALDOT and affiliated associations and personnel such as ADEM, law firms, engineering firms, and testing labs. The implementation of the portal will offer these groups a single site to manage their numerous sets of data and variety of documentation. By centralizing data and activities on the Coliseum Boulevard Plume site to one online location, the Plume Web Portal offers a more efficient management of the contaminant site as a whole. Data from the ALDOT's ongoing monitoring will be uploaded as it becomes available. The Plume Web Portal is available at http://plume.caps.ua.edu.

4.0 Conclusions

The Plume Web Portal is an all-in-one tool that uploads, stores, and retrieves data related to the long-term monitoring of the Coliseum Boulevard Plume site. This single source website has the potential to facilitate efficient management of the site's array of activities and vast datasets. The uploading and storage features adds value to the long-term monitoring efforts and serves as a single location for numerous personnel to manage the various information they produce. All users can use the web map's functions or the numerous querying tools to find data and or documents related to the site. Furthermore, the web map's various layers can be toggled on and off to view specific sampling locations, property parcels, contaminant boundaries, and other groundwater layers. On the upload of data, the website's automatic verification can notify users if data are unrecognizable to the site's database. Similarly, the constituent exceedance checks will alert users and administrators to elevated levels based on location within the plume. Also featured is a tool that lists the sampling locations in need of data collection. The Reports tool enables users to generate constituent tables and location specific charts found in the annual report. Future tasks for the portal may include the generation of more figures to be used in the annual report and other official documentation. Continued outreach to site users will aid in creating an optimal experience with the Plume Web Portal.

5.0 ACKNOWLEDGEMENTS

6.0 REFERENCES

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2. Parr, T. W., Sier, A. R., Battarbee, R. W., Mackay, A., & Burgess, J. (2003). Detecting environmental change: science and society—perspectives on long-term research and monitoring in the 21st century. *Science of the total environment*, *310*(1-3), 1-8.

3. ESRI Basemaps. ESRI (Environmental Systems Resource Institute). 2015. *ESRI,* Redlands, California.

Appendix A: User's Guide

Plume Users' Guide

Coliseum Boulevard Plume Database and Web Portal
Alabama Department of Transportation

Prepared by:

The University of Alabama

Department of Civil, Construction, and Environmental Engineering
Geographic Information Systems Research Lab
and the
Center for Advanced Public Safety

Version 1: May 27, 2019

Table of Contents

Section 1: Introduction

This guide describes the process of using the ALDOT Contaminant Plume Web Portal, beginning with general site use, followed by instructions for utilizing each of the tools offered within the site.

The ALDOT Plume Web Portal project was initiated to house all of the data and documents related to the Coliseum Boulevard Plume (CBP), which has been under the Alabama Department of Transportation's (ALDOT) supervision since 2001. Covering around 1200 acres of land, the CBP contains Trichloroethylene (TCE) and its daughter products at measurable concentrations from 10 – 50 feet below the land surface. The extents of the contaminate plume are shown in Figure 1. In 2017, The University of Alabama (UA) Department of Civil, Construction, and Environmental Engineering and the Center for Advanced Public Safety (CAPS) collaborated to begin developing an online web portal to have functionalities that include (but are not limited to):

- *Uploading and Storing* of historic and future data
- *Querying and Displaying* of data in tabular and/or graphical formats in a user-friendly way that eliminates the need for complex joins and relates
- *Downloading and Exporting* of data for complex analysis or for annual report in a user-defined format (Example: .csv, .pdf, .mdb, .shp, etc.)

Importing and reporting routines implemented by ARCADIS are integrated into the web portal. Additional necessary routines were developed by UA and CAPS in collaboration with ALDOT.
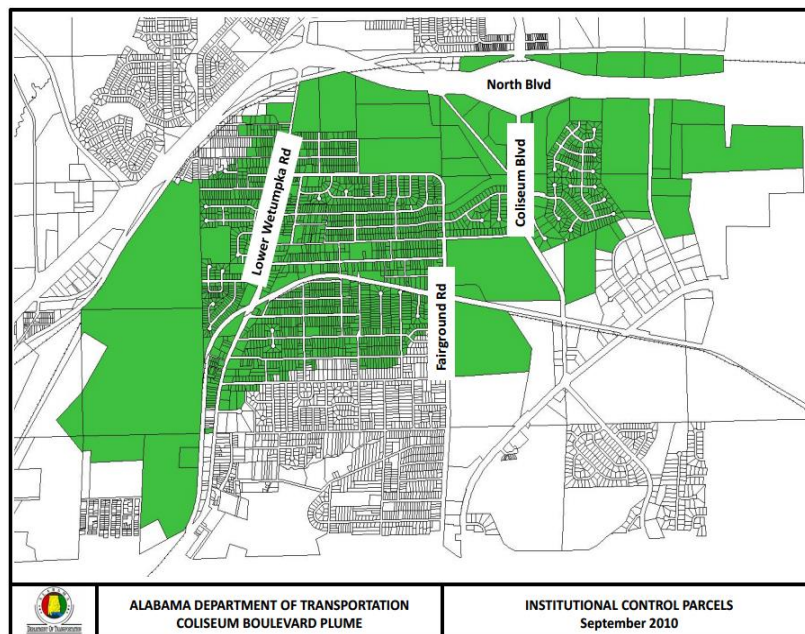

Figure 1: Coliseum Boulevard Plume Extents

Section 2: General Site Use

2.1. Login

The Plume Portal is located on a secure server and is located at the following link: http://plume.caps.ua.edu. Navigate to this address using a web browser to bring up the Plume Login Page. Figure 2 below shows the Login Page. Before logging in, the user will be unable to access any feature within the site.

The Plume Portal requires a valid login ID and password for each user. Contact the administrator for a login ID and password. After a valid user name and password are entered, the user can click the login button and the Plume site will be accessible to the user.
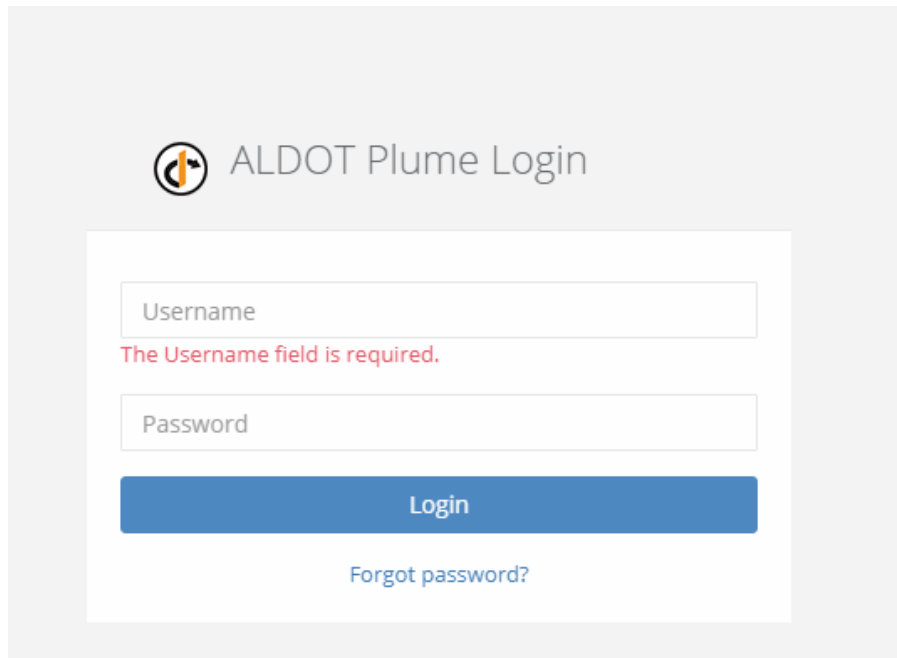
Figure 2: Plume Web Portal Log in Page

2.1. Home Page

The Plume home page is shown in Figure 3. This page is the starting point for a Plume user. The Table of Contents window on the left hand side of the page shows the Features and Sample Locations that are active in the map window. The Records Window is shown, unpopulated, in the bottom of the map viewer. The results of searches or selections will appear in this window. The Main Menu button in the top left corner contains tabs that help navigate the user in selecting, editing, and uploading information, as shown in Figure 4. These tabs include Import Sample Data, Upload Documents, Search, Search Documents, Reports, Additional Layers, Site to Sample, and Search Parcels. From this menu, a user can select any function, but the user can only perform the functions that are within the privileges of the user type.
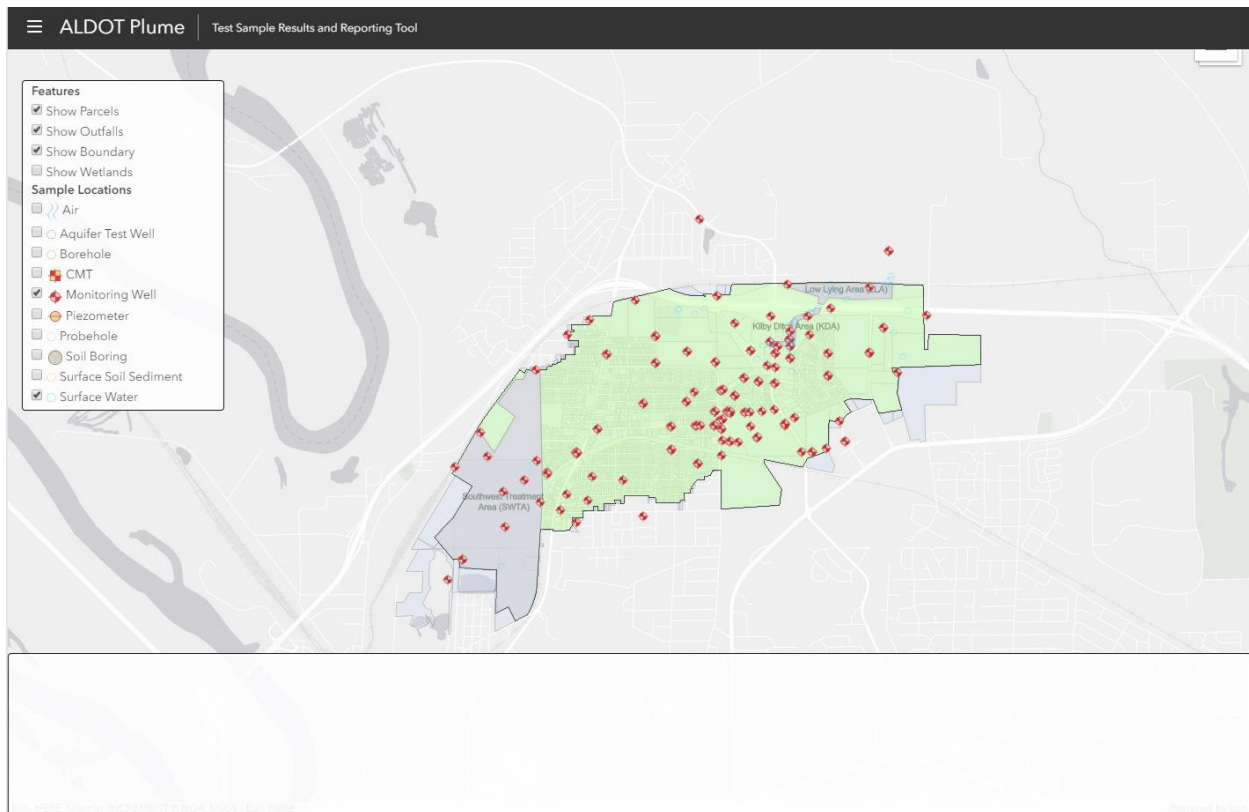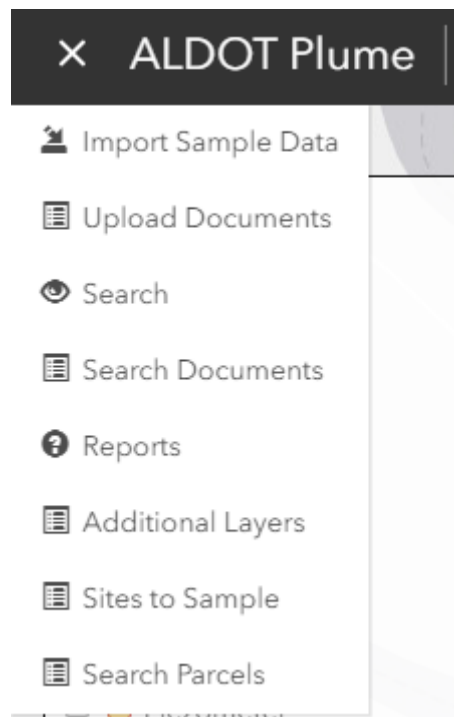
Figure 3. Plume Portal Home Page

Figure 4. Main Menu

2.1.1. Plume Map

        Clicking or dragging within any portion of the map window will allow a user to interact with the Plume map. The initial map view is shown in Figure 5 and displays the general area encompassing the Coliseum Boulevard Plume Site. Visible in the initial map window are features including parcels, outfalls, and boundaries as well as sample locations including monitoring wells and surface water features. A user may toggle features and sample locations off or on by checking or unchecking the boxes in the Table of Contents window on the left hand side of the map viewer.
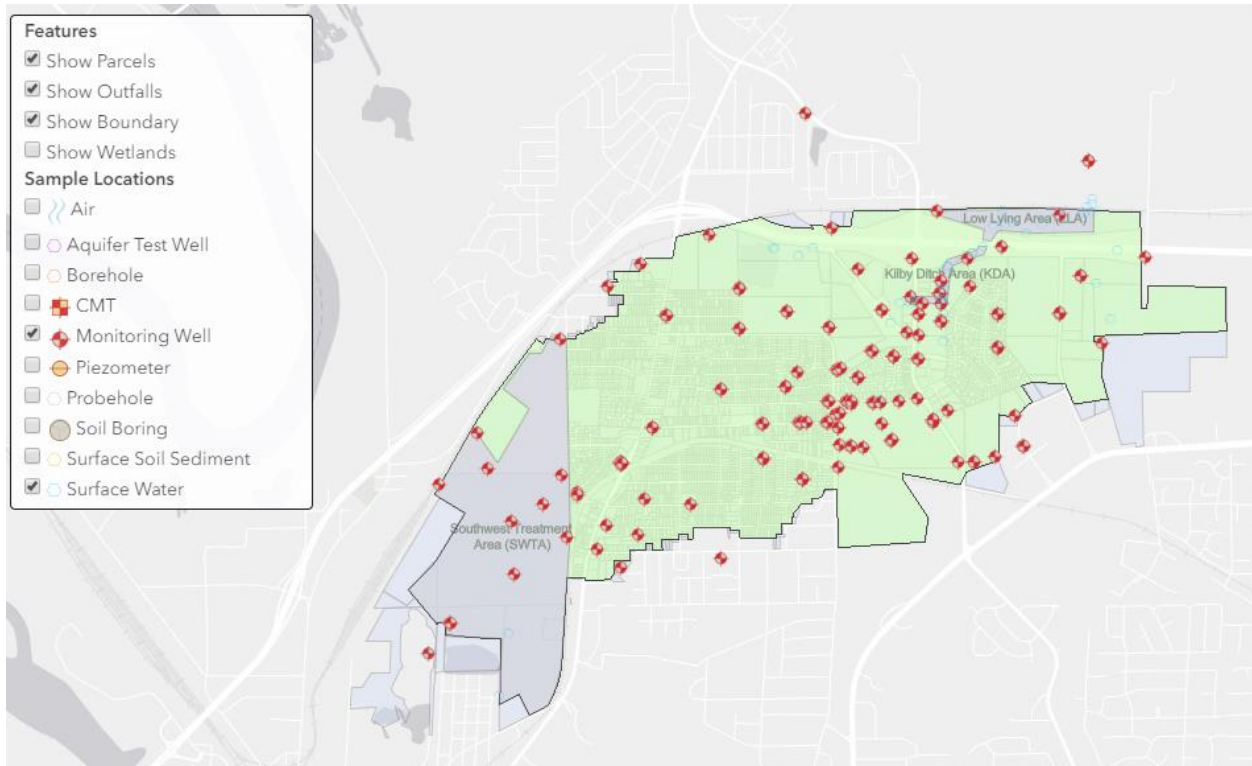

Figure 5. Initial Map View of Plume Area

        To move around the map, a user can simply click, hold, and move the map to pan. Clicking a point on the map will "grab" that point and move the map with the cursor. This will let a user easily locate an area of interest. A user can zoom in or out of the map using the mouse wheel. Moving the mouse wheel forward will zoom in to the cursor. Moving the map wheel back will return to the original view of the map. The mouse wheel allows quick and accurate zooming, and reduces the need to pan the map.

        To view information about a specific sample locations, the user selects the location of interest by clicking on the symbol in the map viewer. After a selection is made, the sample location symbol changes to a bright blue color (similar to the selection feature in ArcGIS) to notify the selection. Additionally, a pop-up window displaying project information appears above the point.

Figure 6 displays the selection of a monitoring well and the resulting pop-up window. The window shows the well name (MW-1), Sample Location Type (Monitoring Well), and graphically displays historic monitoring data. Scrolling downward in the popup window provides access to additional information, such as reports or sampling logs, in the form of downloadable .PDF files. Clicking through the arrows on the bottom right corner of the pop-up window all the user to explore other selections that may have been activated. For instance, clicking on MW-1 also selected the parcel within which MW-1 is located, shown in Figure 7. The pop-up window for the parcel displays the parcel number, address, and owner. A user may toggle off certain layers if he or she does not want them to be selectable.
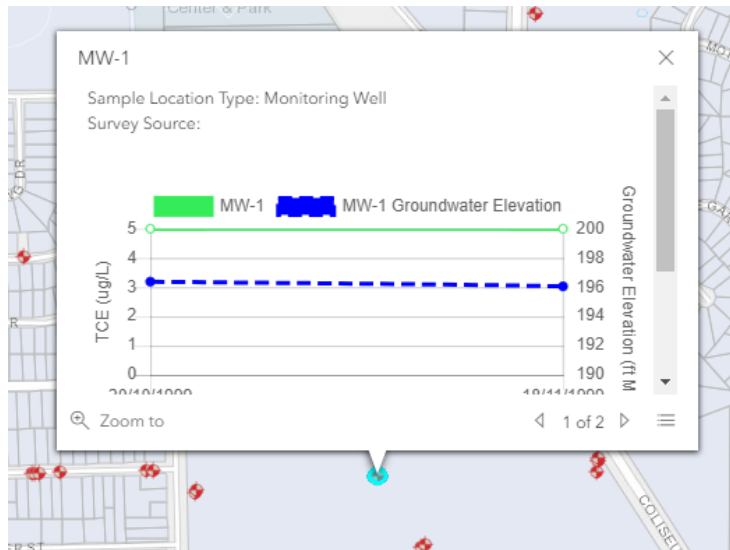

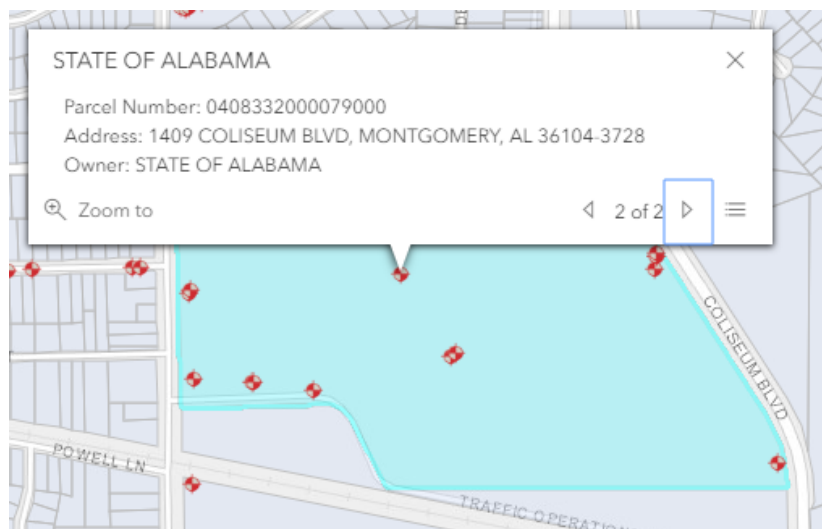Figure 6. Pop Up Window for Sample Location Selection

Figure 7. Pop Up Window for Parcel Selection

When a selection is made, the Results Window at the bottom will also be populated, as shown in Figure 8. The window displays samples taken at the particular location, along with dates sampled and analyzed, sample type, and additional information that may have been collected during the study.
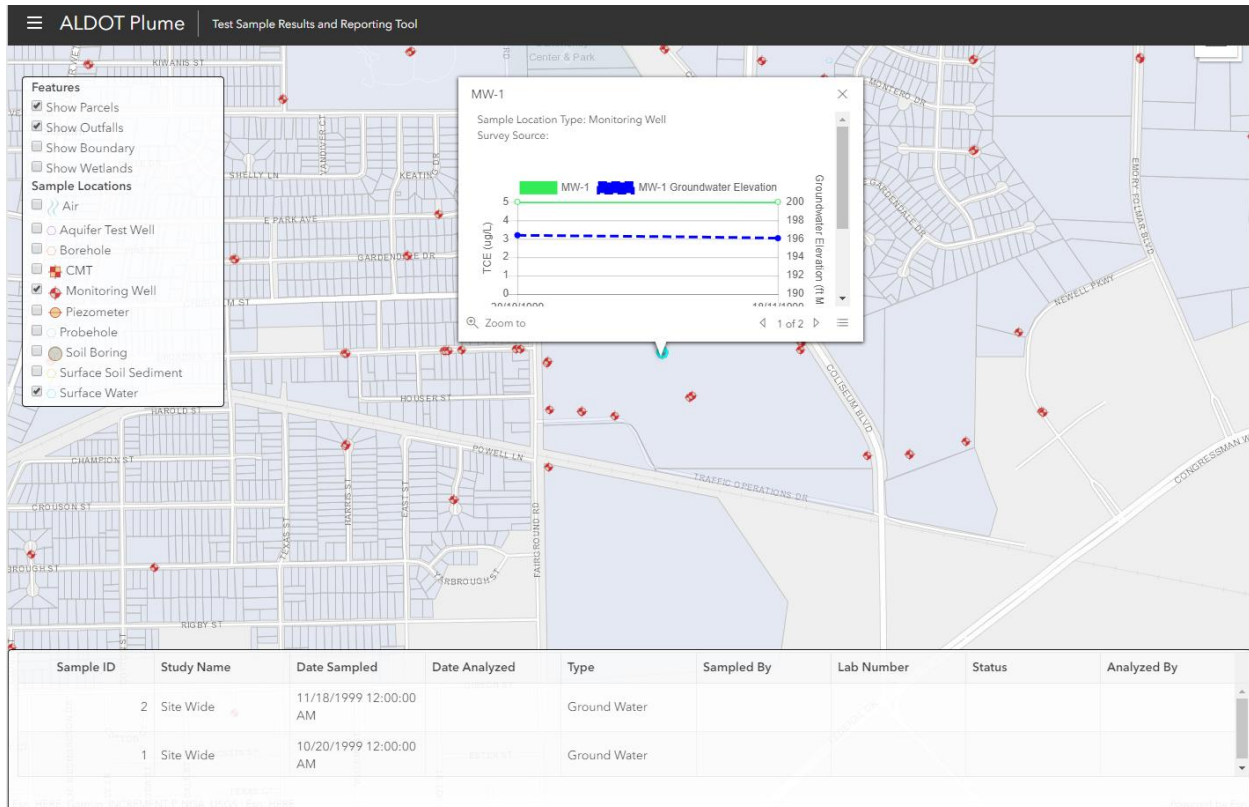

Figure 8. Sample Information for a Selection

To view detailed sample results, a user may click on either of the studies within the Results Window. This will result in a new Sample Results window appearing in the top left corner of the map window, as shown in Figure 9. The Sample Results window will display Analytes, Results, and Status reports for the sample.

Sample ID	Analyte	Result	Status
2	Bromoform	5 ug/L	
2	Tetrachloroethylene	5 ug/L	
2	1,1-Dichloroethene	5 ug/L	
2	Bromodichloromethane	5 ug/L	
2	1,2-Dichlorobenzene	5 ug/L	
2	1,1-Dichloroethane	5 ug/L	
2	1,2-Dichloroethane	5 ug/L	
2	Dibromochloromethane	5 ug/L	
2	Chloroethane	10 ug/L	
2	Toluene	5 ug/L	
2	Trichloroethene	5 ug/L	
2	Trichlorofluoromethane	10 ug/L	
2	trans-1,2-Dichloroethene	5 ug/L	
2	1,1,2-Trichloroethane	5 ug/L	
2	1,1,1-Trichloroethane	5 ug/L	
2	Bromomethane	10 ug/L	
2	Methylene Chloride	5 ug/L	
2	1,3-Dichlorobenzene	5 ug/L	
2	Chloroform	5 ug/L	
2	1,1,2,2-Tetrachloroethane	5 ug/L	
2	O-Xylene	5 ug/L	
2	Chlorobenzene	5 ug/L	

Figure 9. Sample Results Window

2.2. Site Tools

All website tools can be accessed through the Main Menu, as shown previously in Figure 4. Clicking on any of the items within the menu will activate the corresponding tool. This section will discuss the functionality of each tool within the menu: Import Sample Data, Upload Documents, Search, Search Documents, Reports, Additional Layers, Sites to Sample, and Search Parcels.

2.2.1. Import Sample Data Tool

The Import Sample Data tool within the Main Menu allows users to upload sample data to the web portal. Clicking ⛳ Import Sample Data within the menu activates the Import Sample Data window in Figure 10. The "Choose File" button allows user to search within their computer for the desired files to upload. Sample data can be uploaded in Excel (.xls) format. Once a file has been selected, users should click the "Upload" button to complete the uploading process. The web portal routines will automatically check for data formatting as well as contaminant limit requirements. If contaminant limits are exceeded, the web portal will automatically alert the appropriate parties via email.
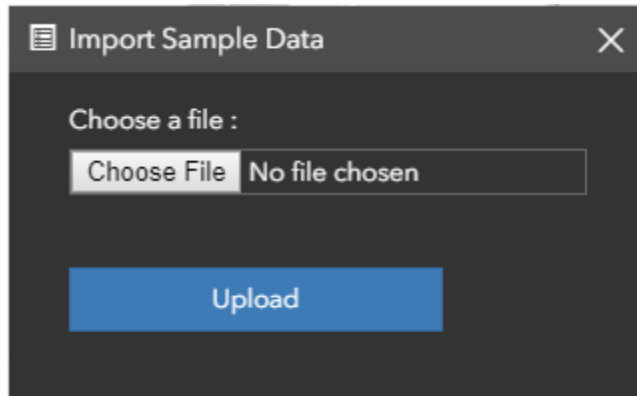
Figure 10. Import Sample Data Tool Window

2.2.2. Upload Documents Tool

      The Upload Documents tool within the Main Menu allows users to upload documents to the web portal. Clicking ▤ Upload Documents within the menu activates the Upload Documents window in Figure 11. Upload Documents Tool Window.
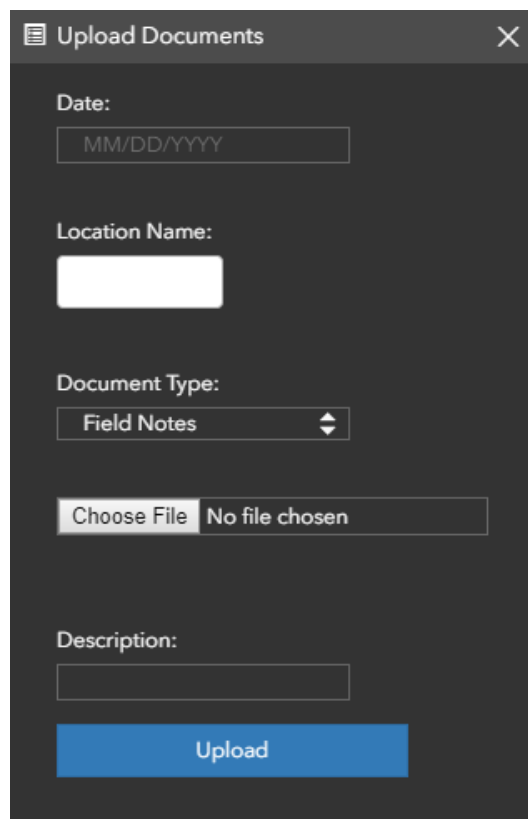

Figure 11. Upload Documents Tool Window

The window contains various fields for the user to populate: Date, Location Name, Document Type, File Location, and Description. The Date field should represent the date of the document generation in MM/DD/YYYY format. The location name should correspond to the site to which the document is relevant, i.e. MW-1. The document type should be selected from the drop-down menu and includes various types including Field Notes, Inspection Forms, Reports, Boring Logs, etc. To select the file path, a user should click on the "Choose File" button. The Description field provides space for the user to add a short textual description of the document. Once all relevant information has been provided, users should click the "Upload" button to complete the uploading process.

2.2.3. Search Tool

The Search Tool within the Main Menu allows users to search sampling locations based on various criteria. Clicking ⊙ Search within the menu activates the Search window in Figure 12.
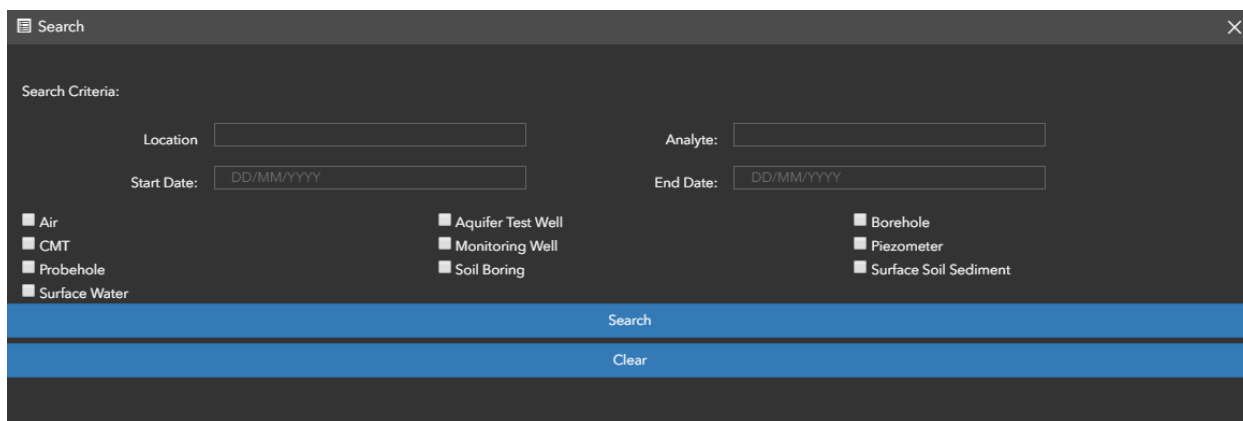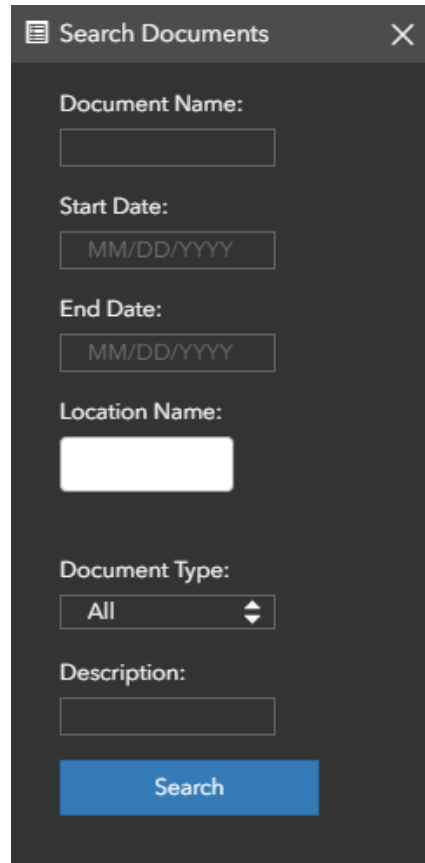

Figure 12. Search Tool Window

The fields in the Search Tool include Location, Analyte, Start & End Date, as well as the ability to select one or more types of sample locations*. The Location field requires the name of a sampling location, i.e. MW-1, and will help identify results for a known location. The Analyte field facilitates searches for analytes of interest, i.e. Chloroform or Trichloroethylene. The Start Date and End Date fields allow a user to specify a desired range of testing dates within which to search. Additionally, if results from only certain testing location types are desired, one or more location types, such as Surface Water or Monitoring Well, can be selected. Results from a search will be displayed in the Results Window at the bottom of the map viewer.

*Currently, the only functioning field in the search window is the Location field. Further updates are planned for this tool.

2.2.4. Search Documents Tool

 The Search Documents Tool within the Main Menu allows users to search for specific documents within the plume database. Clicking ▤ Search Documents within the menu activates the Search Documents window in Figure 13.

Figure 13. Search Documents Tool Window

 The fields in the Search Documents Tool include Document Name, Start & End Date, Location Name, Document Type, and Description. The Document Name field can be used to search for a specific document if a name is known. The Start Date and End Date fields can be used to specify a date range within which documents must fall. Location Name can be selected from a dropdown window and used to specify specific sample locations (i.e. AC-1, CPT-6) from which to select documents. Document Type can also be selected from a dropdown window and can be used to filter certain types of documents. Users may select to search all document types or specific types such as Field Notes, Inspection Forms, etc. Key words from a document's description may also be entered as search criteria. Once criteria have been specified, a user should click on the "Search" button to initiate the search. Relevant documents will appear in the Records Window at the bottom of the plumw web page.

2.2.5. Reports Tool

The Reports Tool within the Main Menu allows for report tables to automatically be generated within the plume web portal. Clicking ❷ Reports within the menu activates the Reports window in Figure 14. The Reports window facilitates the creation of annual report tables as well as specific tables based on certain criteria such as analyte or location. These tables are generated in Excel (.xls) format.

Figure 14. Reports tool window

To generate a specific table, a user should select the desired criteria from the menu. "Location Type" can be selected from a dropdown menu and used to specify air, soil, monitoring well, etc. "Analytes" can be selected from a dropdown menu and used to specify a certain contaminant such as Trichloroethylene, Benzene, etc. "Wells" can be selected from a dropdown menu and used to specify a particular site name, such as AC-1 or BDY-12. The radio buttons can used to further refine reporting criteria by allowing a user to select whether reporting data is

organized by Analyte and Location Type or by Location and Analyte. The Start Date and End Date fields can be populated to specify a date range. The Sample Export radio button can be selected to create sample export of the reporting data. Once all criteria have been entered, the Create Report button can be selected. This will automatically generate the relevant tables in the to the user's computer in the standard reporting format.

To generate annual report tables, the only criteria is the Annual Report Year. To create tables for a certain year, populate the Annual Report Year window with the desired year and then select the Annual Report button. The relevant tables will automatically be downloaded to a zip file titled AnnualReport.zip in the user's Download's folder. The individual tables are then ready for incorporation in the annual report.

2.2.6. Additional Layers Tool

The Additional Layers Tool within the Main Menu allows the user to toggle on additional layers generated from sample data that are not viewable from the main Table of Contents. Clicking Additional Layers within the menu activates the Select Layers window shown in Figure 15.
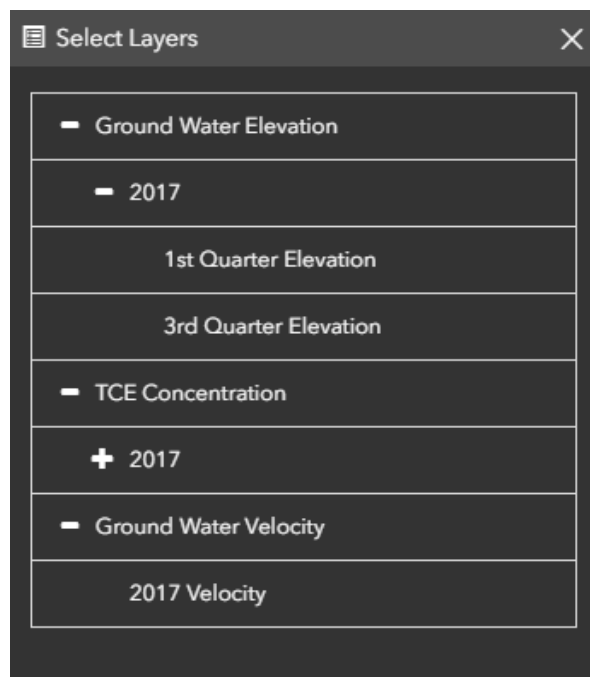
Figure 15. Select Layers Window

Widow items can be expanded (+) or collapsed (-) to show or hide various layers. To select a layer, a user clicks on the layer name within the Select Layers window. Once a layer has been selected, its background will switch from black to blue within the tool window. The layer will then be visible within the map window. Figure 16 shows some of the additional layer selections once they have been activated. Figure 16(a) demonstrates ground water elevation contours, Figure

16(b) shows TCE concentration contours, and Figure 16(c) demonstrates ground water velocity regions.

<center>(a)   (b)   (c)</center>

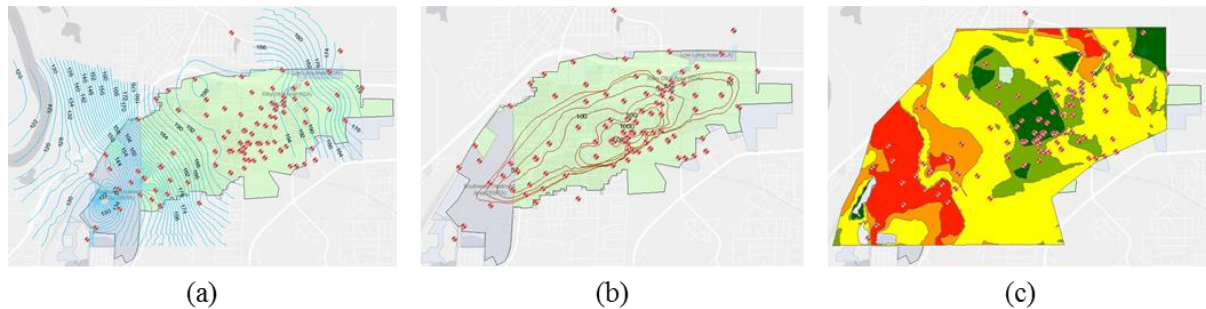Figure 16. Additional Map Layers: (a) Ground Water Elevation, (b) TCE Concentration, and (c) Ground Water Velocity

2.2.7. Sites to Sample Tool

The Sites to Sample Tool within the Main Menu allows the user to run a criteria-based search in order to locate sites for sampling purposes. Clicking ⊞ Sites to Sample within the menu activates the Sites to Sample window shown in Figure 17Figure 15. Sites can be filtered by location type, number of wells, or date last sampled.

The location type can be selected from the dropdown window and includes the option to search amongst all location types or specific types such as boreholes, monitoring wells, etc. Running a search based solely on location type will generate a report of all sample locations of the specified type (or types) of locations that have not been sampled within the past year.

The number of wells can be used to limit the amount of sample locations that are reported by specifiying a maximum number of locations. For instance, if a number of wells of "10" is entered, only 10 results will be reported. This can be useful in prioritizing sample locations if necessary.

The 'Last Sampled' box allows for a sample date criteria to be entered. Entering a date in YYYY-MM-DD format will refine the search results to only include sample locations that were last sampled before the specified date. For example, a sample date of 2010-01-01 will only return sample locations with last sample dates before January 1, 2010.

After the desired search criteria has been entered, users should select "Get Sites" to generate the report. A PDF report will automatically be generated and opened in the browser.
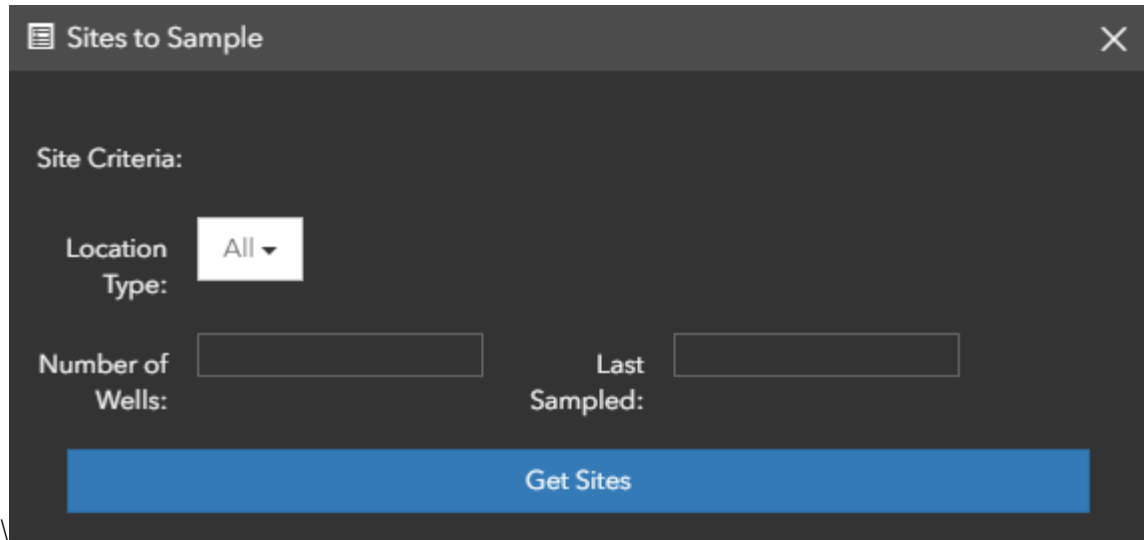
Figure 17. Sites to Sample tool window

2.2.8. Search Parcels Tool

     The Search Parcels Tool within the Main Menu allows the user to search for and locate a parcel based upon a known parcel number. Clicking ▤ Search Parcels within the menu activates the Parcel Search window shown in Figure 18Figure 15. To search for a parcel, a user should enter a full parcel number in the "Parcel No." window and then press the "Search" button. The map window will automatically zoom to the parcel of interest and display the parcel information in a dialog box. To clear the current search and run a new search, the "Clear" button can be selected.
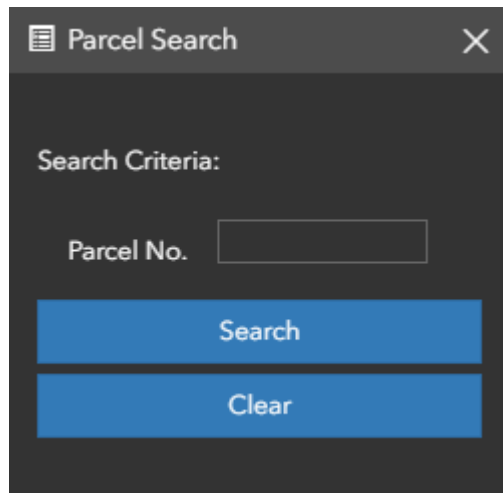
Figure 18. Parcel Search tool window

Appendix:

Table 1: Monitoring Well Exceedance Limits

EFF Monitoring Well	TCE Concentration Action Limit (mg/L)
MW-106	20
MW-206	20
MW-137A	20
MW-237B	20
MW-237C	20
MW-131	15
MW-231	15
MW-135A	15
MW-235B	15
MW-235C	15
MW-136A	15
MW-236B	15
MW-236C	15
MW-150A	15
MW-250B	15
MW-250C	15
MW-108	5
MW-208	5
MW-129	5
MW-229	5
MW-130	5

MW-230	5
MW-132	5
MW-232	5
MW-143A	5
MW-243B	5
MW-146A	5
MW-246B	5
MW-147A	5
MW-247B	5
MW-123	5
MW-223	5
MW-128	1
MW-228	1
MW-134	1
MW-234	1
MW-153	1
MW-5A	0.5
MW-113	0.5
MW-213	0.5
MW-111	0.5
MW-211	0.5
MW-117	0.5
MW-217	0.5
MW-133	0.5

MW-233	0.5
MW-210	0.5
MW-221	0.5
MW-221C	0.5
MW-156	0.5
MW-259	0.5
MW-260	0.5
MW-263	0.5
MW-264	0.5
MW-265	0.5
MW-154	0.5
MW-155	0.5
MW-125	0.5
MW-225	0.5
MW-144A	0.5
MW-244B	0.5
MW-244C	0.5
MW-261	0.5
MW-109	0.1
MW-209	0.1
MW-115	0.1
MW-215	0.1
MW-116	0.1
MW-216	0.1

MW-118	0.1
MW-218	0.1
MW-219	0.1
MW-262	0.1
MW-311	0.005
MW-339	0.005
MW-340	0.005
MW-341	0.005
MW-342	0.005
MW-104	0.005
MW-204	0.005
MW-304	0.005
MW-112	0.005
MW-212	0.005
MW-357	0.005
MW-457	0.005
MW-358	0.005

Table 2: Boundary Well Exceedance Limits

Boundary Well COCs	Action Limits (mg/L)
Chloroform	0.08
1,1-Dichloroethene	0.007
cis-1,2-Dichlroroethene	0.07
Trichloroethene	0.005

Vinyl Chloride	0.002
1,1-Dichloroethane	0.081
Carbon Tetrachloride	0.005
Chloroethane	0.0046
Tetrachloroethylene	0.005
Methylene Chloride	0.005

Table 3: Surface Water Location Exceedance Limits

Low Lying Area Compliance Point		
Point Identification	Monthly Average TCE Concentration Allowable (ppb)	
LLCP-1	37.38	
Southwest Treatment Area Compliance Point		
Point Identification	Daily Maximum Allowable (ppb)	Monthly Average TCE Concentration Allowable (ppb)
DSN001	37.94	17.47