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David Nickless, Director
Office of Completion Project Delivery
Department of Energy Environmental Management
Los Alamos Field Office
P. O. Box 1663 MS M984
Los Alamos, NM 87545

Subject: General Facility Information Document

Dear Mr. Nickless:

Enclosed please find one hard copy with electronic files of the General Facility Information (GFI) document. This document provides directions on how to access environmental information electronically through the Intellus New Mexico public database. Step-by-step instructions show how individual elements of the GFI can be viewed in the Intellus database.

If you want to request a demonstration of how to use this new format or have any questions, please contact Nita Patel at (505) 665-9273 (npatel@lanl.gov).

Sincerely,

for Bruce Robinson, Program Director
Environmental Remediation Program
Los Alamos National Laboratory

BR/DR:sm

Enclosures: Two hard copies with electronic files – General Facility Information Document (EP2017-0138)

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General Facility Information Document

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EST. 1943

Prepared by the Associate Directorate for Environmental Management

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1.0 INTRODUCTION

This General Facility Information (GFI) document provides a framework and toolbox for the U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office (EM-LA), its contractors, and stakeholders to use to access environmental information that supports site investigations and cleanup. Unlike previous GFI documents, this document provides a guide on how to use the IntellusNM database (Intellus, available at www.intellusnm.com) to access site information.

Los Alamos National Laboratory (LANL) environmental data span a wide range of media, including air, soil, sediment, water, and biota as well as over 1000 analytes and time periods extending over four decades, resulting in over 16 million records to manage and analyze. To achieve the obligations of accelerated data delivery and efficiency, information sharing, and transparency, LANL adopted a cloud-based database called the Environmental Information Management (EIM) system and its public database counterpart.

EIM is LANL's internal cloud database that provides a cradle-to-grave process for data processing, handling, and reporting. Intellus is the publicly available view of the entire EIM database and requires no data feeds or transformations. Intellus allows user-friendly access to LANL's environmental data as it is reported within hours of receipt.

To provide maximum flexibility to the user, data can be searched for either by Location Group or by Location Type.

Location Group: sampling locations binned together based on focused monitoring areas at LANL (e.g., Chromium Monitoring Group).

Location Type: sampling locations binned together based on category (e.g., alluvial wells, surface water gaging station, etc.)

The report is composed of two sections: GFI Content and GIS Tool References, and Desktop Guidance.

GFI Content and GIS Tool References describes the types of information accessible, including appropriate steps to access information via Intellus geographical information system (GIS) tools. Numbering in this section follows that found in the Compliance Order on Consent (2005) Section IV.A.2 covering the GFI. Parenthetical references in text direct the user to specific subsections that provide directions for a step or function.

Desktop Guidance includes general instructions for using the Intellus GIS tools to access maps and view tabular data.



Additional information on the Intellus GIS+ premium web mapping services can be found by clicking this icon in the lower right-hand corner of the GIS toolbar.

2.0 GFI CONTENT AND GIS TOOL REFERENCES

2.1 Facility-wide Topographic Map

1. Access Intellus map page (section 3.1).
2. Change the base map (section 3.2)
   - USA Topo, U.S. Geological Survey, or National Geographic icons are all topographic map options.

2.2 Detailed Geology of the Chromium Project Area

Detailed information on the geology of the Chromium Project area at LANL can be accessed as follows.

1. Accessing the Intellus page (section 3.1).
2. Changing the base map to the “Geologic Surfaces (GFM)” basemap (section 3.2).
3. Opening the map layers and choosing the layer corresponding to a geologic horizon (section 3.3).

2.3 Maps and Tables Indicating the Surveyed Coordinates and Locations of Gaging Stations (Interactive)

Maps and tables presenting the surveyed coordinates and locations of all existing springs, wells, and surface water can be accessed as follows.

1. Accessing the Intellus map page (section 3.1).
2. Changing the base map (Optional, section 3.2).
3. Querying single or multiple locations using the “Monitoring Well, Spring, or Supply-Well Location Types” (sections 3.4 and 3.5).
4. Alternatively, querying single or multiple locations using the “Alluvial Springs, Alluvial Wells, Base Flow, Intermediate Springs, Intermediate Wells, Regional Springs, Regional Wells, Los Alamos County Supply Wells, San Ildefonso Community Wells, or Santa Fe Supply Wells Location Groups” (sections 3.4 and 3.5).
5. Viewing tabular data (section 3.6).
6. Creating well report(s) (section 3.7). These well reports include automatic updates of analytical data derived directly from the database.
7. Using the grid controls to view and/or download data (Optional, section 3.8).

2.4 Fault System Map

The Pajarito Fault System data and map can be accessed as follows.

1. Click on the below link to access the Pajarito Fault System Data Description and PDF Fault System map
   http://www.intellusnm.com/documents/document-library.cfc?method=retrieveLanlFile&nodeId=f678f453-4fbf-4ac3-ab1a-2ca43d767d60&fileName=Pajarito Fault System.pdf

   If link does not work, copy and paste it in browser.

2. Alternatively, access the Pajarito Fault System map in the document navigator; drill down into LANL Files, then Maps (section 3.10.1).

2.5 Information for Springs

Information on all springs across LANL and nearby property can be accessed as follows.

1. Accessing the Intellus map page (section 3.1).
2. Changing the base map (Optional, section 3.2).
3. Querying single or multiple locations using the Spring Types (sections 3.4 and 3.5).
4. Alternatively, querying single or multiple locations using the “Alluvial Springs, Intermediate Springs, or Regional Springs Location Groups” (sections 3.4 and 3.5).
5. Viewing tabular data to view stratigraphic units, discharge point elevations, and other information (section 3.6).
6. Creating well report(s) (section 3.7). These well reports include automatic updates of analytical data derived directly from the database.
7. Using the grid controls to view and/or download data (Optional, section 3.8).

2.6 Information for Alluvial Groundwater

Information on alluvial groundwater at LANL and nearby locations can be accessed as follows.

1. Accessing the Intellus map page (section 3.1).
2. Changing the base map (Optional, section 3.2).
3. Querying single or multiple locations, selecting the “Alluvial Springs or Alluvial Wells Location Group” to display alluvial locations (section 3.4 or 3.5).
4. Viewing tabular data by selecting the analytical or groundwater radio buttons for analytical data of contaminants of interest and groundwater-level readings (section 3.6).
5. Creating well report(s) for full record of groundwater, analytical, field measurements, and well details (section 3.7). These well reports include automatic updates of analytical data derived directly from the database.
6. Using the grid controls to view and/or download data (Optional, section 3.8).

2.7 Information for Perched-Intermediate Groundwater

Information on perched-intermediate groundwater at LANL and nearby locations can be accessed as follows.

1. Accessing the Intellus map page (section 3.1).
2. Changing the base map (Optional, section 3.2).
3. Querying single or multiple locations, selecting the “Intermediate Springs or Intermediate Wells Location Group” to display intermediate groundwater locations (section 3.4 or 3.5).
4. Viewing tabular data by selecting the analytical or groundwater radio buttons for analytical data of contaminants of interest and groundwater-level readings (section 3.6).
5. Creating well report(s) for full record of groundwater, analytical, field measurements, and well details (section 3.7). These well reports include automatic updates of analytical data derived directly from the database.
6. Using the grid controls to view and/or download data (section 3.8).

2.8 Information for Regional Groundwater

Information on regional groundwater at LANL can be accessed as follows.

1. Accessing the Intellus map page (section 3.1).
2. Changing the base map (Optional, section 3.2).
3. Querying single or multiple locations, selecting the “Regional Springs or Regional Wells Location Group” to display regional locations (section 3.4 or 3.5).
4. Viewing tabular data by selecting the analytical or groundwater radio buttons for analytical data of contaminants of interest and groundwater-level readings (section 3.6).
5. Creating well report(s) for full record of groundwater, analytical, field measurements and well details (section 3.7). These well reports include automatic updates of analytical data derived directly from the database.
6. Using the grid controls to view and/or download data (section 3.8).

2.9 Water-Table Contours

Information on water-table contours at LANL and nearby locations can be accessed as follows.

1. Accessing the Intellus map page (section 3.1).
2. Changing the base map to the “Water Table Contours” basemap (section 3.2).
3. Opening the map layers and choosing the layer corresponding to the geologic features desired (section 3.3).

2.10 Groundwater Chemistry

Information on groundwater chemistry at LANL and nearby locations can be accessed as follows.

1. Accessing the Intellus map page (section 3.1).
2. Changing the base map (Optional, section 3.2).
3. Querying single or multiple locations using the “Alluvial Springs, Alluvial Wells, Intermediate Springs, Intermediate Wells, Regional Springs, or Regional Wells Location Groups” (sections 3.4 and 3.5).
4. Viewing tabular data and selecting the analytical radio button to view water chemistry parameters of interest (section 3.6).
5. Creating well report(s) for full record of groundwater, analytical, field measurements, and well details (section 3.7).
6. Using the grid controls to view and/or download data (Optional, section 3.8).

2.11 Water-level data

Information on water-level data at LANL and nearby locations can be accessed as follows.

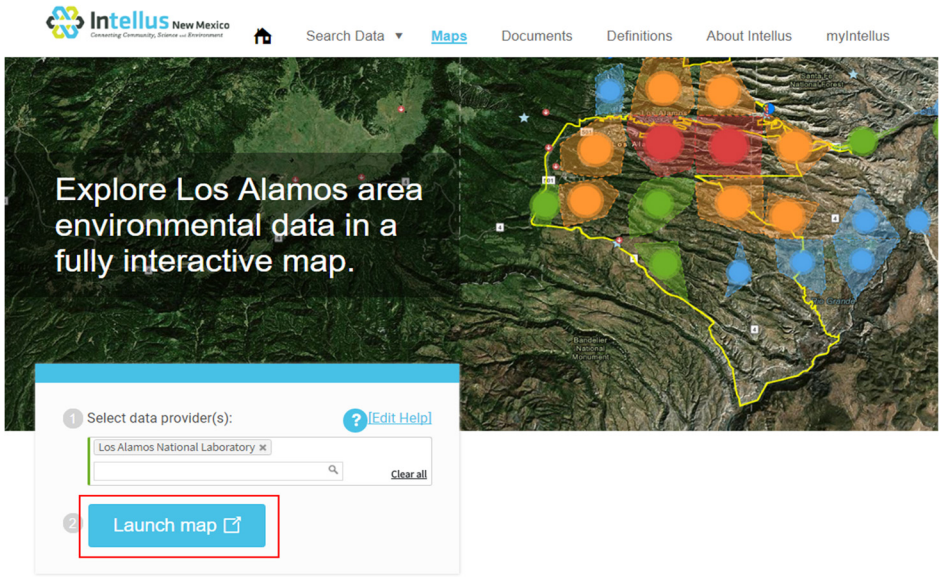
1. Accessing the Intellus map page (section 3.1).
2. Changing the base map (Optional, section 3.2).
3. Querying single or multiple locations using the “Alluvial Wells, Intermediate Wells, Regional Wells, Los Alamos County Supply Wells, San Ildefonso Community Wells, or Santa Fe Supply Wells Location Groups” (section 3.4 or 3.5).
4. Viewing tabular data selecting the groundwater radio button to view “Groundwater Levels” (section 3.6).
5. Creating well report(s) and extracting the GROUNDWATER_LEVEL table from the resulting .zip file to download all groundwater elevations (section 3.7).
6. Using the grid controls to view and/or download data (Optional, section 3.8).
7. Creating a groundwater elevation chart for the well locations of interest (section 3.9).
8. Downloading a more detailed history of groundwater elevations at automated locations (section 3.10).

3.0 DESKTOP GUIDANCE

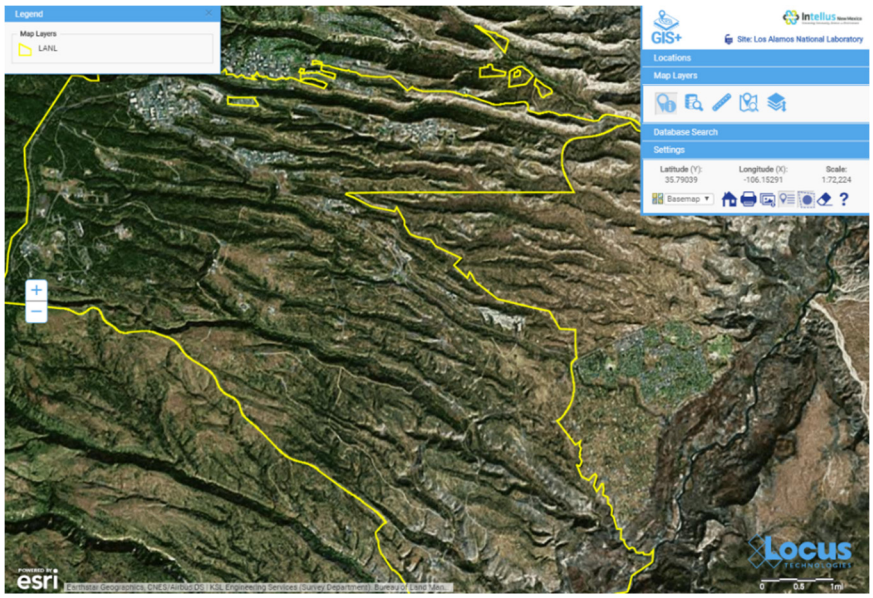
Intellus presents data and maps as additional windows or tabs; users must disable popup blockers in the browser before they can access the Intellus public website.

3.1 Accessing the Intellus Page

1. Navigate to http://www.intellusnm.com.
2. In the upper menu bar, click the “MAPS” menu item.
3. Select “Los Alamos National Laboratory” as the data provider.

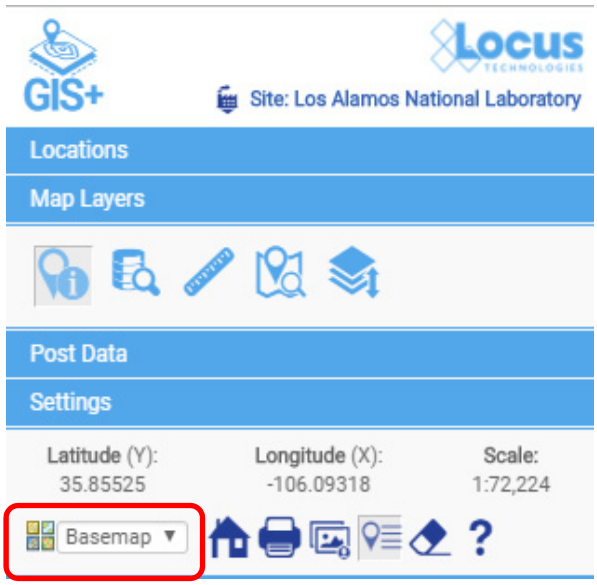


4. Click the “Launch Map” button on the page.
5. The map will open in a new browser page with the facilities border highlighted in yellow:



3.2 Changing the Base Map

1. In the “Settings” section at the bottom of the toolbar to the right, click the “Basemap” dropdown option.



2. Hover the cursor over a map thumbnail to view a description of the basemap.
3. Click on the image to display or change the map.

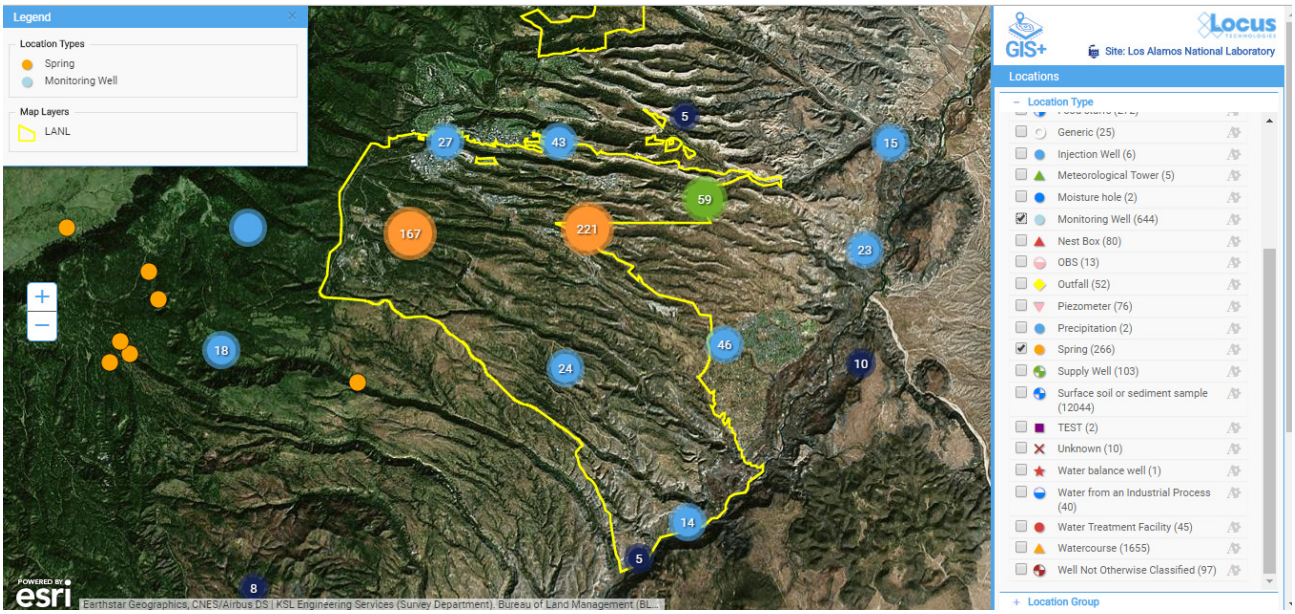


3.3 Adding a Standard Map Layer

1. Navigate to Intellus Maps (section 3.1).
2. In the GIS toolbar to the right, click the “Map Layers” dropdown panel.
3. Select the checkbox for the layer(s) to display in the map.

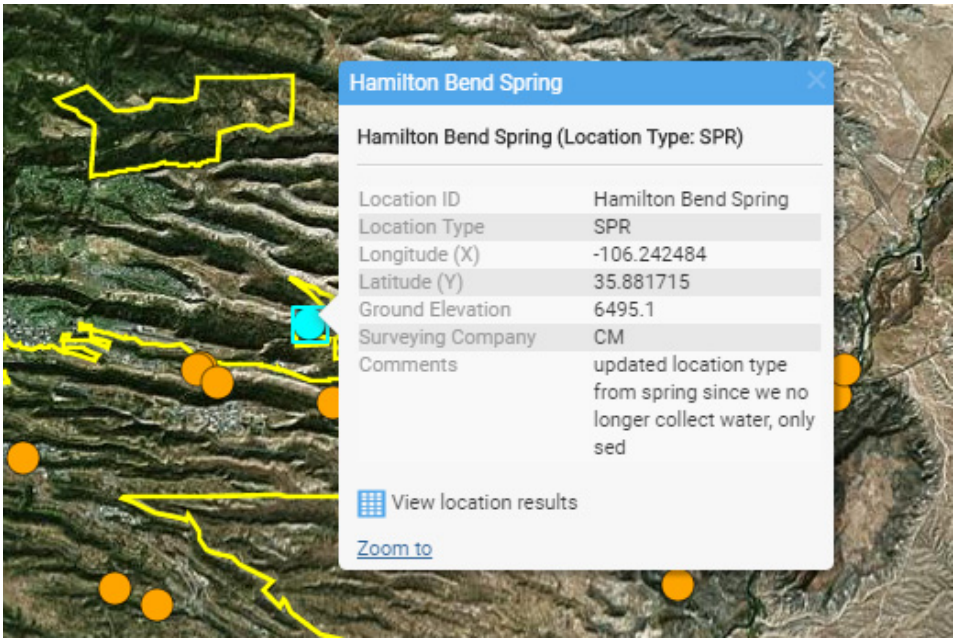
3.4 Querying Data for a Single Location

1. Navigate to the Intellus Maps page per instructions above.
2. The map will open in a new browser page with the facilities border highlighted in yellow.
3. Click on the blue location bar in the menu panel to display option to select. Users can also choose to display locations based on location type, location group, sample type, or sample group. In this example, we will display based on location type “Spring” and “Monitoring Well” (To select by Location Group, click the “Location Group” header directly underneath the list of Location Types).
4. Check the boxes next to the location types you wish to display on the map.



5. Note that by default locations will be clustered, as shown above, when the number of visible locations exceeds 500. To change clustering options, click the Settings menu. Select “Layers and Map” to adjust the Location Display threshold.
6. To zoom in to a particular geographic area, use the”+” and “−“ buttons on the left side of the page. Alternately, you can hover the cursor over a region and use the scroll bar on a mouse to zoom in or out.

7. To see detailed information for an individual location, click on the location symbol in the map. The selected location will be highlighted in blue and a popup window will appear with detailed information about the selected location.



3.5 Querying Data for Multiple Locations

1. Navigate to the Intellus Maps page (http://www.intellusnm.com) as described above.
2. In the GIS tool panel on the right side of the page, expand the "Query" panel and select an option from the Method dropdown:

   a. Point queries: Specified Coordinates, Specified Address, Interactive Point



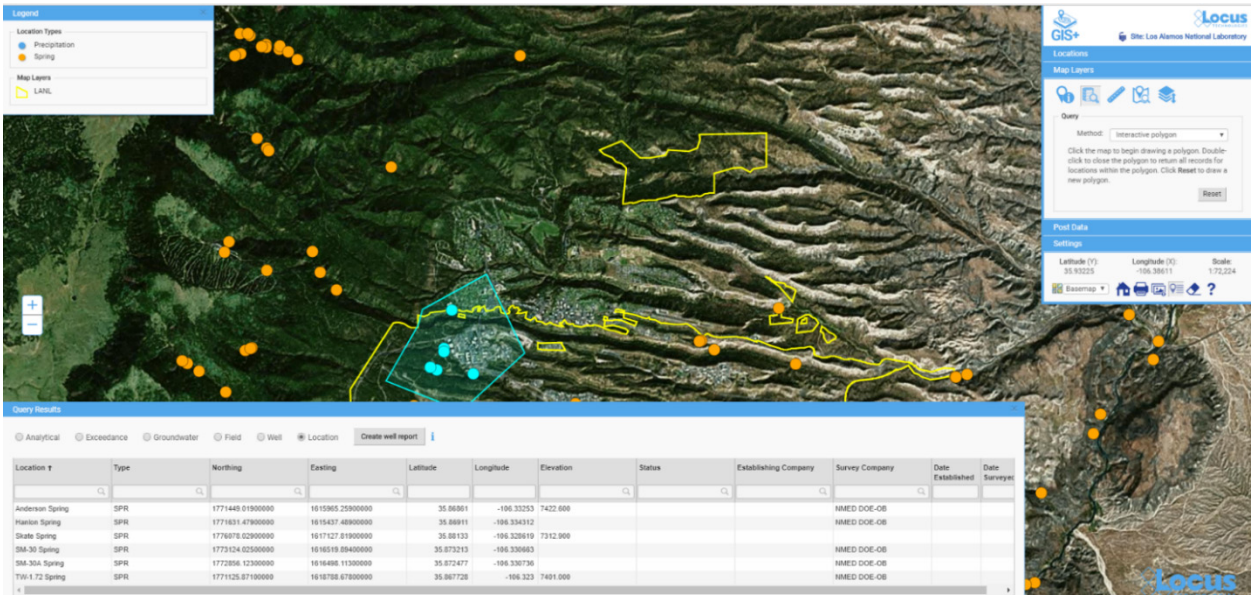
   Each of these options requires a "Radius" to be specified (the default is 1000 ft). The "Specified Coordinates" and "Specified Address" options also require the appropriate location information to be entered; then click on the Run query button. For the "Interactive Point" option, click the map to define the point for your query, and a circle will appear around the desired location based on the radius entered.

   b. Polygon queries: Interactive Polygon, Freehand Polygon

   To use the "Interactive Polygon" method, simply click anywhere on the map to start drawing a polygon. Double-click or "close" the shape to complete the polygon and display results for locations within the polygon.

c. Selected map features: Spatial Query

The spatial query enables users to query for locations within a specified distance of an object, for example, a PRS boundary, technical area boundary. The specific object depends on the layer that is currently displayed. Click features from map layers to select them, then click "Query" to perform a spatial query for locations within the specified distance from those features.

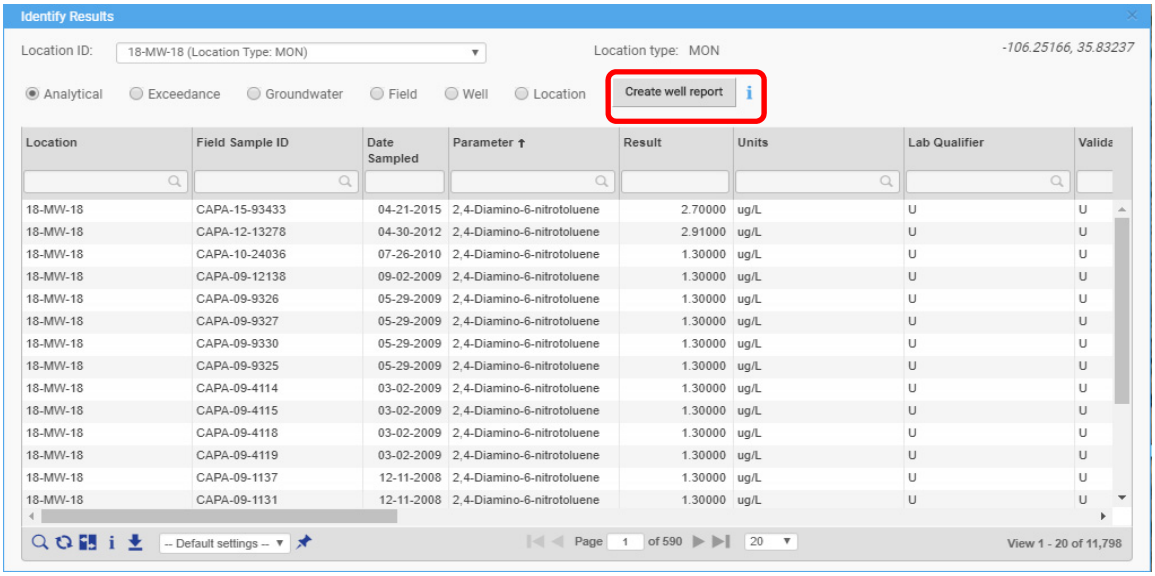


3.6 Displaying Tabular Information

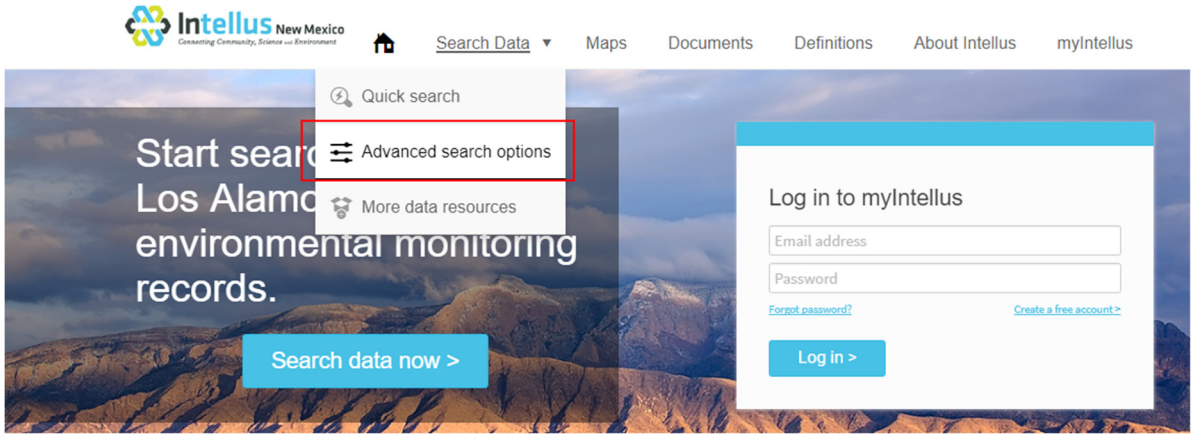
1. Click the "View location results" hyperlink in the popup window. An information grid to "Identify Results" will appear in the lower left-hand corner of the browser.
2. Click on the blue title bar, "Identify Results," to expand or collapse this panel.
3. Use the radio button to toggle between the following available data types: analytical, exceedance, groundwater, field measurement, well, location data. The grid will update automatically when a new data type is selected.

3.7 Creating a Complete Well Data Package

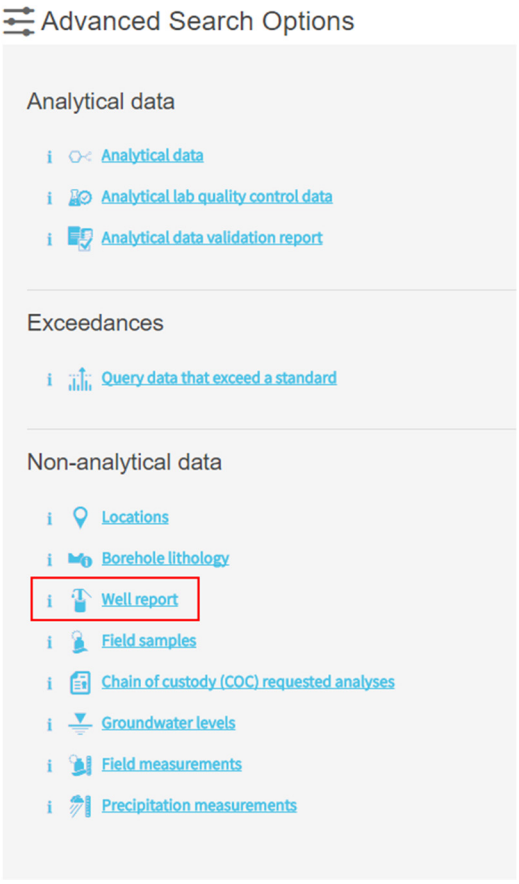
1. Click the “Create Well Report” button above the tabular grid to generate a well report. The output will be a .zip file containing location, well, analytical, and field measurement data in .csv format for the current location(s) selected.
2. Note: This report will present data between the date range specified in the “Database Search” section of the map menu panel to the right.



3. Alternatively, both the CSV output as well as formatted PDF reports can be generated from the advanced search options page in Intellus:



4. Select the link for Well Report under Non-analytical Data:
5. Select one or more location by filtering by location groups or individual locations to select the wells of interest.
6. Select the output type of either PDF (formatted PDF report) or zip (zipped package of CSV data files).



3.8 Using Data Grid Controls

1. Tabular data can be downloaded, sorted, and queried directly in the grid.
2. The empty box at the top of each column can be used to quickly query the data field.
   a. This search equates to a field “contains” query.
   b. To search within a column, enter the criteria in the empty box and click enter.
   c. A list of all possible matches will appear to select from once the user starts typing in the box.
   d. Multiple columns can be queried.
   e. The “contains” search will also be reflected in the “Find Records” window, as described below.
3. Sort any column by clicking on the column header.
   – The arrow indicates if the sort is ascending or descending.
4. In the lower section of the grid are controls used to manage, view, and export grid data. Hover the mouse over to see the action for each icon. The lower section of the data grid has controls that can be used to perform the following:



   a. Find records
   b. Reload the grid and clear filters
   c. Reorder/Select data columns
   d. Display help on using the grid

e. Download data in the grid to designated file

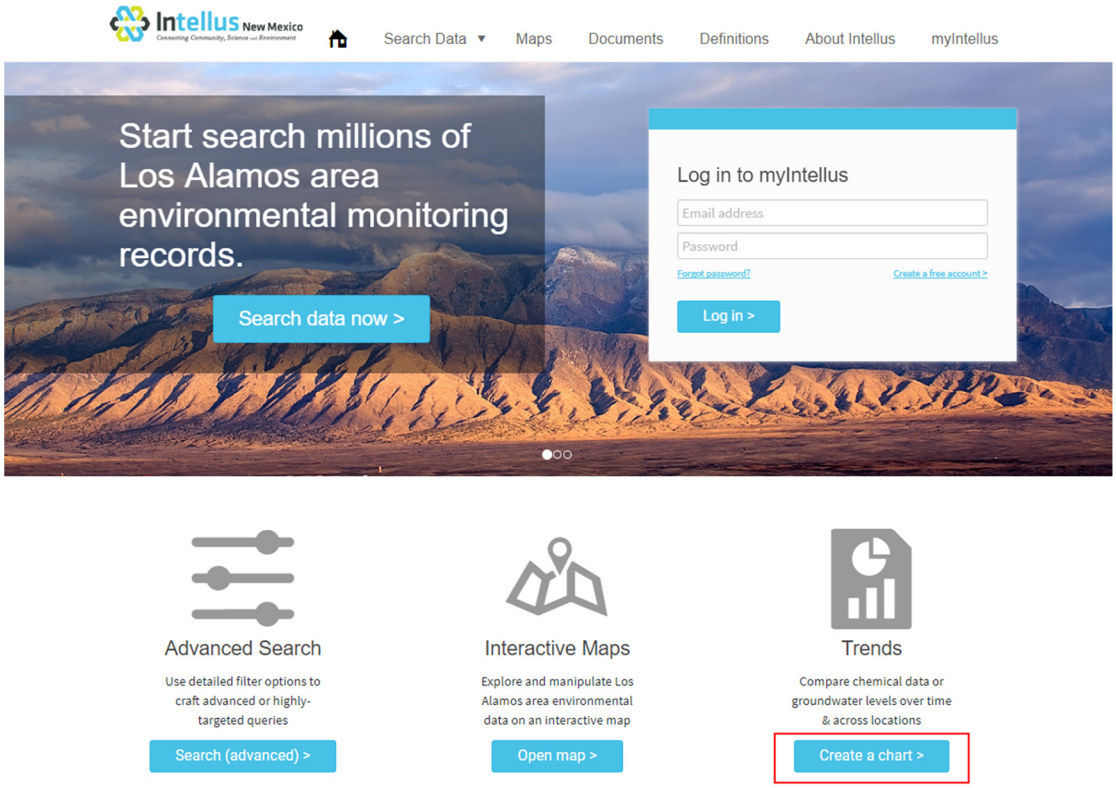
f. Save the grid configuration for future use

g. The page arrows are used to page through the data grid pages.

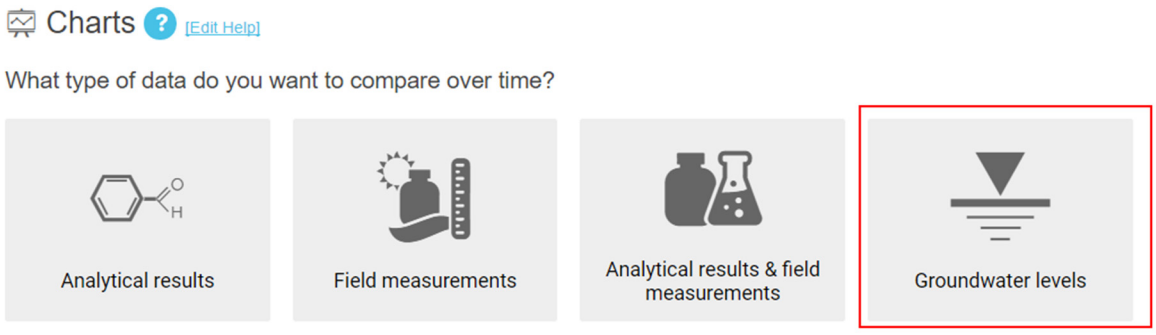
h. The row number selector dropdown allows you to display more rows on the screen.

3.9 Creating Groundwater Plots

1. From the main Intellus page, click Create a Chart, underneath the myIntellus login box.



2. Click on the right-most link of the chart select screen to select “Groundwater levels” charts and hit continue:

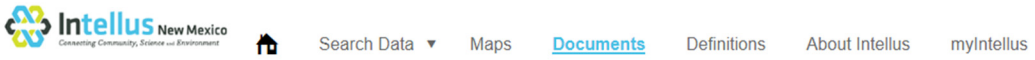


3. Choose to filter either by “Location Groups” or “Location ID,” press load to generate the list of matching locations, and choose up to 10 locations to chart.

4. Modify the sample date range, if needed. By default, the groundwater charts will query for the most recent 5 yr of data.
5. Press submit to view the resulting groundwater chart.

3.10 Accessing Raw Groundwater Data

1. Navigate to the Documents Page on Intellus.



2. In the document navigator, drill down into LANL Files, then Data Packages, then Groundwater Levels.
3. Select the aquifer of interest.
4. Select the location of interest, and click the View document button to download the file.
5. Alternatively, in the document navigator, drill down into LANL Files, then Well Documents.
6. Select the well of interest, click on zip file, click on the hyperlink, and open the file.
7. Open well file folder to display Documents, Geophysics, and Water Level Data:
   - The document folder consists of reference documentation pertaining to well drilling and well construction activities.
   - The geophysics folder consists of data from well-logging activities.
   - The water-level data folder consists of Excel files containing validated manual and transducer data.