

TerraGo GeoPDF© Instructions

Note: This document is an explanation of features used within a proprietary, commercial form of a geospatial PDF but is not an endorsement or recommendation for the use or purchase of any TerraGo product, including TerraGo Toolbar. The use of these trade and product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

I. Overview

This document explains how to navigate a TerraGo GeoPDF©. GeoPDF is a unique, proprietary type of portable document format (PDF) which allows for advanced functionality for geospatial layer display and attribute querying within an Adobe PDF.

II. Recommended Download Information for TerraGo Toolbar functionality

In order to access any attribute information embedded within a geospatial data layer within a GeoPDF, it is recommended that a user download the free TerraGo Toolbar© [available at <http://info.terragotech.com/download/terrago-toolbar>, as of November 6, 2017].

When using the Identify feature of the Toolbar (fig. 1), a user can click on a geospatial feature (point, line, or polygon) and, if that feature has attribute information embedded into the GeoPDF, a pop-up window will display a table of data attributes (fig. 2). The Toolbar is not required but without it installed, a user cannot view any embedded attribute information. For point features, it is best to use a zoom level of less than or equal to 200%; zoom levels greater than 200% often result in the cursor having difficulty in selecting the center of a given point.

For the GeoPDF "Argentina_Lithium_Map.pdf," only two layers have attribute information included: i) layers that have the "Lithium Projects" prefix to indicate that they are a lithium project at a certain stage of development and ii) the layer "Salars." A reader can click on a lithium project for further information on project details, including ownership; if they click on a salar anywhere within a boundary, the name of the salar will show up in the Identification window.

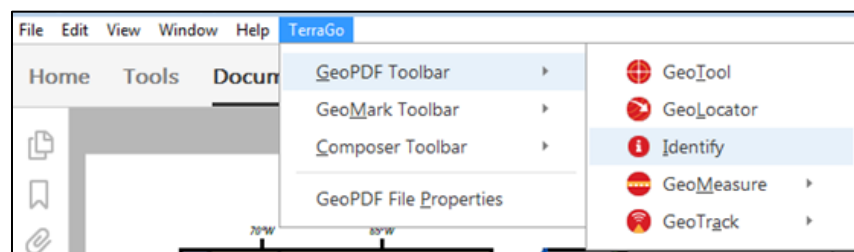


Figure 1—Location of the Identify feature in the TerraGo Toolbar when installed.

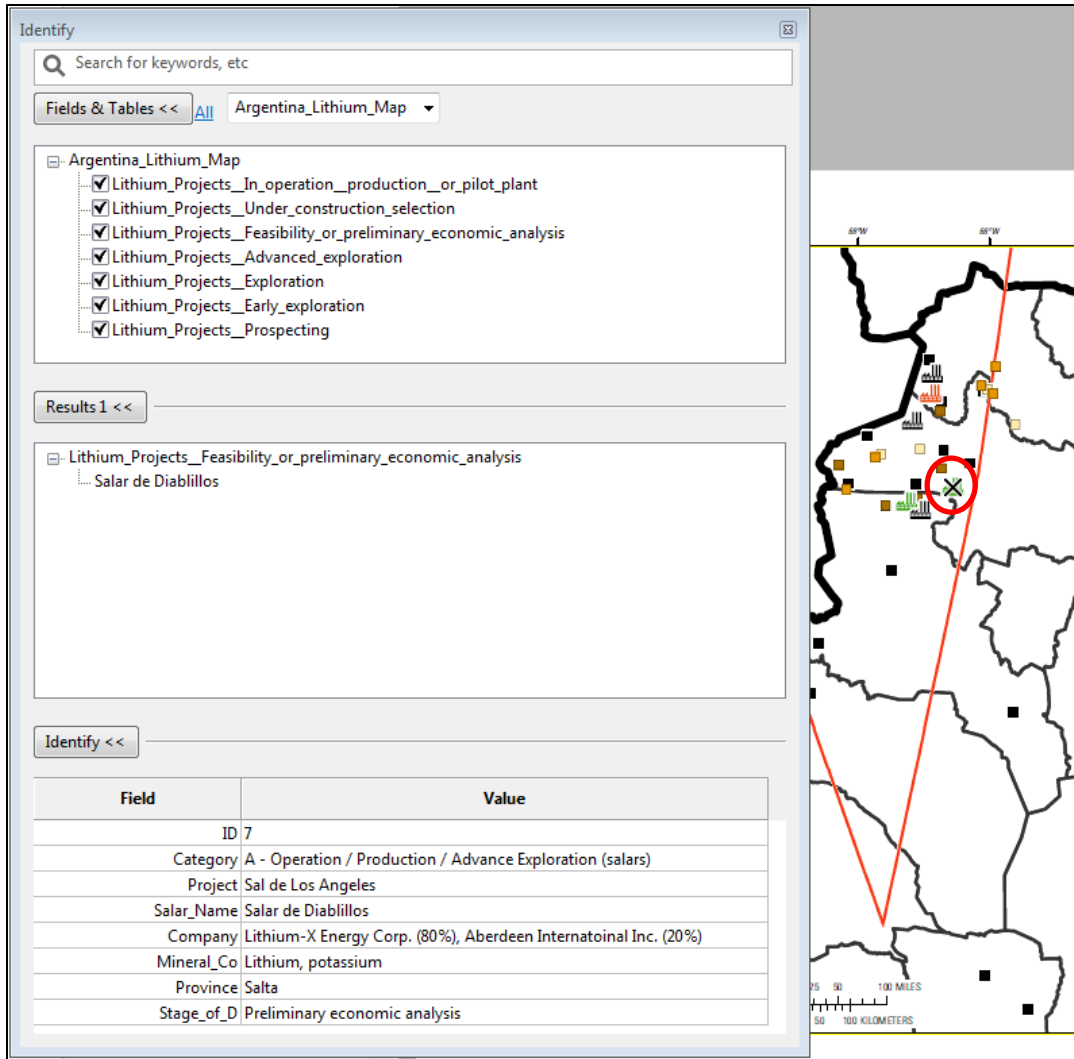


Figure 2—Example of a point selected with the pop-up window showing embedded attribute information in the GeoPDF. For point features, this works at zoom levels of 200% or below; zoom levels greater than 200% result in difficulty in the cursor to select the center of a given point. The red circle indicates the selected point, shown within the PDF with an “x” over the point itself once selected by the cursor.

III. Layer Navigation

When opening a GeoPDF, a user can navigate to the layer visibility controls via the left-hand side “Layers” menu in Adobe Acrobat or Adobe Acrobat Reader, shown in the red circle (fig. 3). If a user does not see this side panel in their version of Acrobat or Reader, they should see a gray arrow on the left-hand margin of the Acrobat or Reader screen, which will open up the navigation pane (fig. 4).

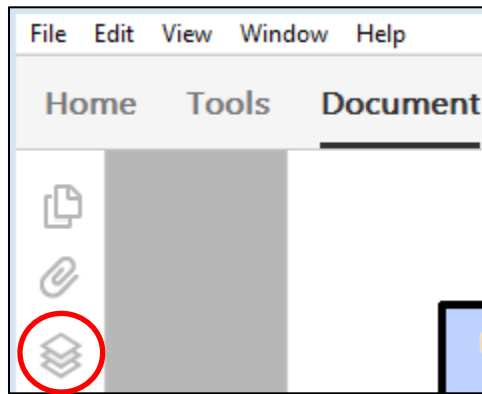


Figure 3—Location of the “Layers” menu in Adobe Acrobat Reader.

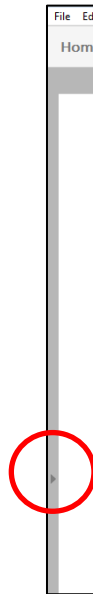


Figure 4—Location of the arrow to open or close the navigation pane.

When the navigation pane and “Layers” menu are both open, the user will first see an entry for the entire GeoPDF, in this case entitled “Argentina_Lithium_Map” (fig. 5).

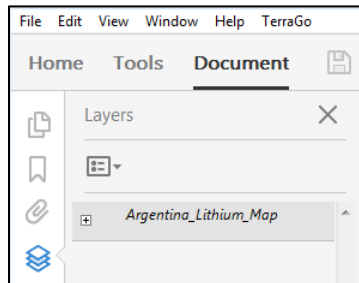


Figure 5—First menu item in the “Layers” menu.

By clicking on the plus icon on the left of the GeoPDF map name, the full list of top-level features or geospatial layers expands. A user should click on any additional plus icons to then expand until they see the full list of geospatial layers and features (fig. 6).

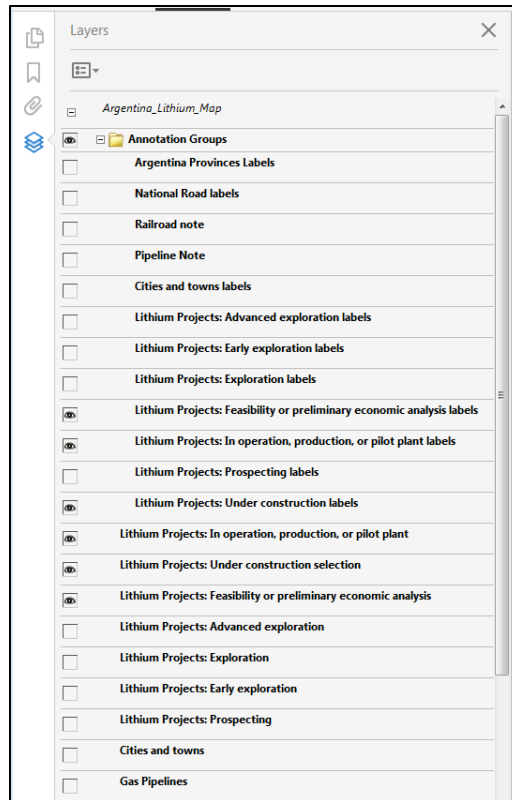


Figure 6—Full list of geospatial layers within the GeoPDF.

Fig. 6 shows part of the list of geospatial features and layers within the GeoPDF “Argentina_Lithium_Map.” For this map, geospatial data layers have their labels grouped into a top-level folder called “Annotation Groups.” This way the visibility of individual label layers can be turned on or off independently of the actual data layer.

Fig. 7 shows the full area of the main map with all layers’ and layer labels’ visibility turned on. This produces a map with many labels overlapping each other, often producing unintelligible areas of overlap.

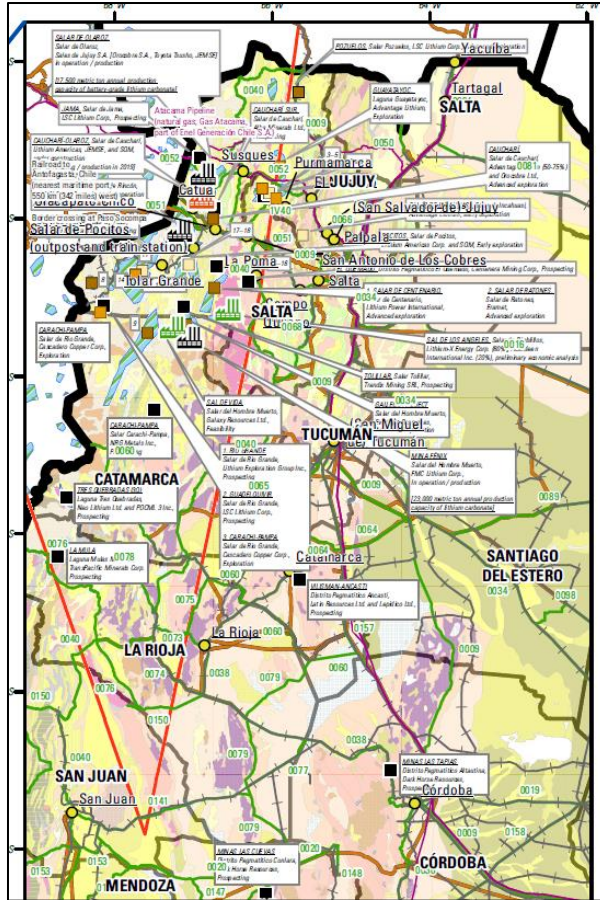


Figure 7—All layers visible in the “Argentina_Lithium_Map” GeoPDF.

The eye icon to the left of each geospatial layer controls that layer’s visibility in the main map display. In this GeoPDF, layer visibility only controls one of the maps shown: the entire GeoPDF contains two insets maps showing the Lithium Triangle’s location in South America but the features within the insets are not programmed to be have their visibility be turned on or off.

Fig. 8 shows the menu bar when eye icons have been clicked to turn off a layer’s visibility (similar to when the file is first opened).

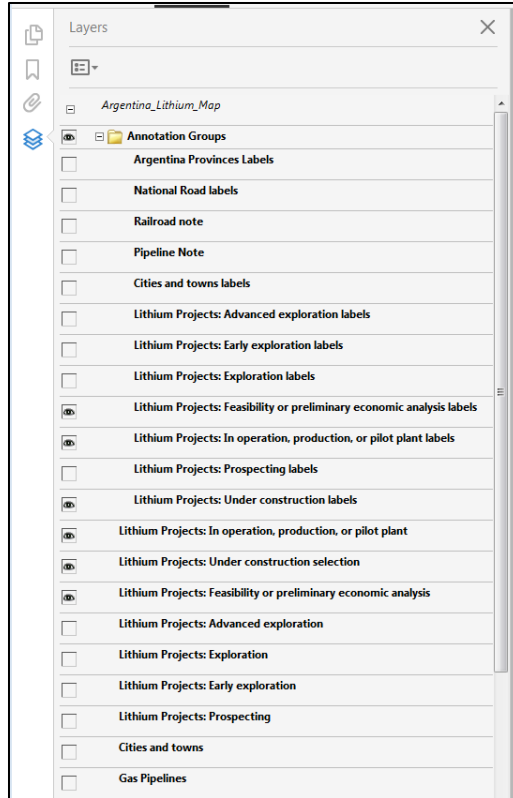


Figure 8—Menu when some layers have had the layer visibility turned off.

Fig. 9 shows the “Argentina_Lithium_Map” GeoPDF when it first opens, with only a few layers and labels programmed to appear.

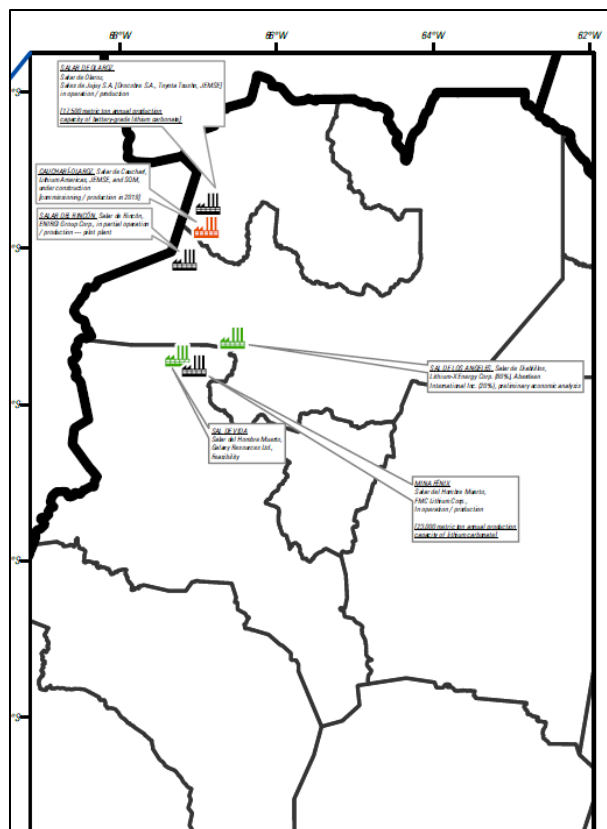


Figure 9—All layers not visible (e.g., the eye icon has been clicked off and is not showing in the menu) except “Country (background),” “Argentina Provinces,” and the following three categories of lithium projects: a) in operation, production, or pilot plant; b) under construction; c) feasibility or preliminary economic analysis. Note that the Argentina Provinces layer does not have its corresponding label layer visible.

Having greater control of the layers’ visibility and using the Identify feature in the TerraGo Toolbar are the two advanced functions and benefits of the TerraGo GeoPDF and Toolbar.

For example, Fig. 10 shows the three layers in Fig. 9, zoomed in to the border area of Bolivia, Chile, and northwestern Argentina, this time with the railroad layer visible.

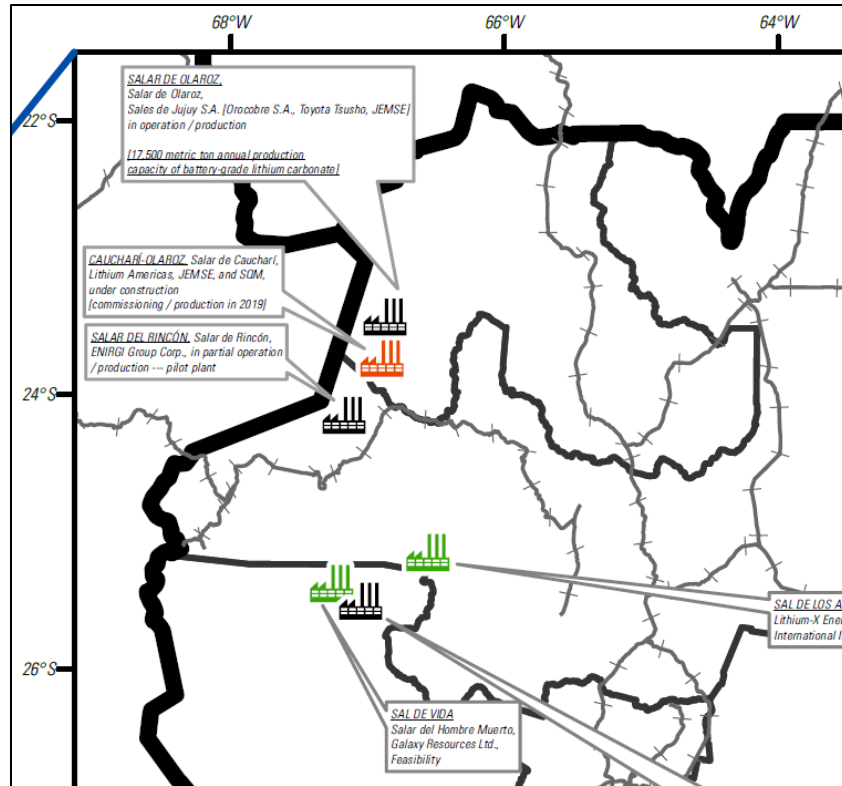


Figure 10—All layers in Figure 9 visible with the additional of the railroads.

There is a note discussing the railroad that crosses the Chile-Argentina border, however, as shown in Figure 11, when certain labels are visible at the same time, there is a degree of overlap that makes some text unintelligible.

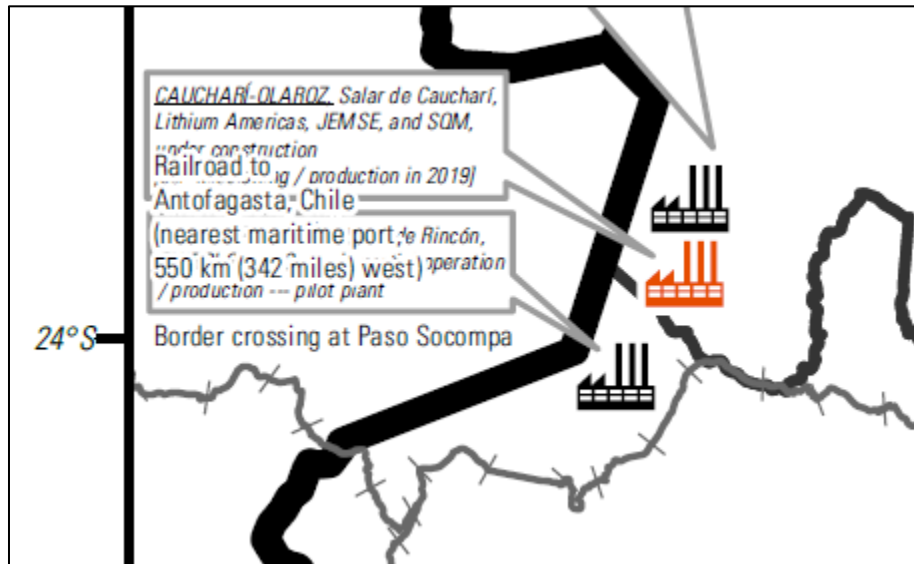


Figure 11—Overlapping labels.

Thus, it is important for a reader to look through all labels and layers to determine for themselves how best to overlap / overlay different data sets. Other GeoPDFs created with this technology have different

design parameters which can mitigate the degree of overlap. However, given the number of features in a relatively tight space for this map and with the great amount of spatial information necessary to convey in a single main map, there is some degree of overlap that cannot be avoided.

Other forms of generic geospatial PDF's (such as direct exports from ArcGIS) do not offer the flexibility to embed attribute information in user-friendly pop-up window or do not allow for as many features to have attribute information embedded within the GeoPDF itself. "Argentina_Lithium_Map" is a relatively simple GeoPDF but more complex GeoPDFs could have additional features with many attribute fields included or other pieces of information such as embedded hyperlinks. The way in which TerraGo GeoPDFs are created allows for greater data compression and thus for more data attributes to be included in complex maps.

The TerraGo Toolbar itself offers other features, including advanced geospatial editing and feature creation tools, if a user has purchased the licensed versions of TerraGo plug-ins for the ArcGIS software. However, the use of these features is not intended for individuals who solely intend to read a GeoPDF map and to be able to turn layer visibility on or off, or for the querying of attribute information.