Oil and Gas Water Quality, Well Drilling

Prepared by the Policy Surveillance Program Staff

SUMMARY

This dataset captures well-bore integrity standards and verification, types of drilling fluids, cementing requirements, cement-bond logs, mechanical integrity testing, and blowout prevention equipment. This dataset includes laws for 17 states and federal rules for lands and minerals managed by the Bureau of Land Management, Bureau of Indian Affairs, and the U.S. Forest Service, current as of November 25, 2015.

ABOUT OIL AND GAS WATER QUALITY, WELL DRILLING & THE DATA

Laws regulating the well drilling phase primarily focus on the structural strength and integrity of the well bore hole. The major focus is on requirements for the steel pipe casing, which separates the drilled bore hole from the surrounding dirt, and the cementing, which is used to adhere the casing to the formation and to support the casing and prevent drilling fluids from migrating between permeable underground zones. Depending on the depth of the casing, different names are used to differentiate the different pipes used – surface casing, intermediate casing, production casing. A great number of regulations address this stage of oil and gas development to protect fresh-water aquifers for the duration of the well’s life.

NAVIGATING THE DATA

There are two ways to navigate the data by clicking the Filter tab or the Explore tab — for each option, the data can be visualized in a map and table format or in jurisdiction profiles.

Filter
The dataset homepage will default to the Filter tab. Here, users may answer a series of questions to learn more about the characteristics of the laws. Answering more than one question will show all the jurisdictions that meet the combined criteria. Criteria selected will be listed above the questions, and can be removed by clicking the white X or by clicking “Reset” above the questions.

Explore
Users can access Explore by clicking the Explore tab in the bar above the questions. Using Explore, users will see the answers to one question across all jurisdictions.

The primary questions in this dataset are:

1. Does your jurisdiction specify well-bore integrity standards for drilling?
2. Does your jurisdiction require verification that well-bore surface casing was implemented properly?
3. Are operators required to use air or freshwater-based drilling fluid when drilling through freshwater aquifers?
4. When is well-bore cementing required?
5. Are cement-bond logs required to be recorded and filed?
6. Does your jurisdiction address mechanical integrity testing?
7. Does your jurisdiction specify a compliance reporting process during well drilling?
8. Does your jurisdiction specify horizontal-drilling requirements?

DISPLAYING THE RESULTS

There are two display modes once criteria have been selected by using either the Filter or Explore tab — Map display mode and Profiles display mode.

Map Display
LawAtlas.org dataset homepages default to the map display mode. When querying the data using the Filter tab, all jurisdictions that meet the criteria selected will display in one tone of yellow. Those jurisdictions that do not meet the criteria selected will be colored gray. When querying the data using the Explore tab, the map will illuminate with colors from yellow to red that are associated with the various answer choices (the color-coding is defined by the key to the left of the map).

Below the map, a table will appear. Using the Filter or Explore tab to navigate the questions will change the display:

- Using the Filter tab, you can select an unlimited number of criteria and the applicable jurisdictions that meet the combined criteria will be displayed in the table below.
- Using the Explore tab, you can isolate a single criterion and the applicable jurisdictions will appear in the table below.

Profiles Display
The Profiles display presents the results of the criteria selected in a text-based format for each applicable jurisdiction. Using the Filter tab, jurisdictions that meet the criteria selected will display. Using the Explore tab, jurisdictions that meet the criterion selected will display. If no criteria are selected, the full profiles for each state will appear under both Filter and Explore.

Profile Legend
Within each Profile box, above the questions and answers, there are additional options and information useful in exploring the law:
<table>
<thead>
<tr>
<th>☀</th>
<th><strong>Toggle Legal Text</strong> – Selecting this option will show all the legal text used to answer questions for this jurisdiction.</th>
</tr>
</thead>
<tbody>
<tr>
<td>☀</td>
<td><strong>Toggle Full Place Profile</strong> – Selecting this option will show all questions and answers for this jurisdiction, regardless of what was selected using the Filter or Explore tabs.</td>
</tr>
<tr>
<td>⚡</td>
<td><strong>Toggle Size</strong> – Selecting this option will make the profile larger, but will not change the information displayed.</td>
</tr>
</tbody>
</table>

**Legal Text History** – This interactive timeline displays when changes in the law have occurred within a jurisdiction. Using the arrows to the left or right, users may explore how the law has changed over time as new amendments to the law have been enacted. The timeline will change from gray to a shade of yellow when the jurisdiction passed its first relevant law. Each change in the law after that is marked by a break in the timeline.

![Timeline](timeline.png)

**Map and Profile Legend**
There are a few symbols to be aware of in both Map and Profiles display modes:

| ☀ | **Section Symbol** – Clicking this symbol will open a window that displays excerpts from the law that correspond to the question and answer. |
| ☀ | **Caution Note** – Clicking on this symbol will open a small window that displays text that describes important caveats about the question and answer. |
DATASET RESOURCES
Each dataset homepage includes the following resources available for download:

- **Data**: The Data file exports in CSV format and may contain two tabs. The “Statistical Data” tab contains the legal variables coded in the dataset, displayed as values defined in the accompanying Codebook. The “Summary Data” tab contains the legal variables coded in the dataset in text form, as well as the accompanying citations and any caution notes that may be included. Note: if there is only one tab available for download it will be the “Statistical Data” as described above.

- **Codebook**: The Codebook defines all of the coded variables in the dataset. The Codebook lists the question, question type, variable name, variable value and variable label. The Codebook should be used in conjunction with the Statistical Data extract.

- **Research Protocol**: The Research Protocol is a comprehensive document that outlines the entire methodology of the project, including the scope, inclusion and exclusion criteria, data collection methods, definitions, coding scheme decisions, as well as the quality control process.

- **Summary Report**: The Summary Report provides a snapshot of important findings from the dataset.

ADDITIONAL INFORMATION
For more information about oil- and gas-related laws, please see:


This collection of laws does not provide legal advice nor does it address enforcement of laws, administrative policies, case law, or any other sources of law. Should you have a specific question about these laws in your state, please contact an attorney in your jurisdiction.