

## **Steps Cabot Oil & Gas Corporation is taking to ensure that its operations protect Pennsylvania's water and air resources**

### **About Cabot**

Cabot Oil & Gas Corporation (Cabot) is one of the leading independent natural gas producers in the United States. Cabot is committed to ensuring that its operations in Pennsylvania protect all water resources and comply with all applicable federal, state, and municipal environmental and safety regulations.

### **Cabot Policy and Pennsylvania State Regulations**

Cabot has implemented a policy designed to meet and exceed the current Pennsylvania regulations governing water use and protection. Within six months prior to drilling a well, all landowners are identified within 2500 ft of a proposed surface location for drilling a well. Each landowner is notified of Cabot's intent to drill the well, and at the time of such notification, each landowner is given the option of requiring Cabot to test all nearby water sources. Testing is completed at the expense of Cabot using an independent and state accredited laboratory. Landowners are provided with a copy of their results within three months after testing.

While Pennsylvania regulations do not require companies to provide the breadth of the above-mentioned notifications and testing programs, Cabot is committed to being a caring neighbor, good corporate citizen, and an environmental steward in the communities in which it operates. A more detailed explanation of Cabot's notification and testing program is set forth below.

### **Notifications for Water Testing**

Once the surface location for a natural gas well is proposed by Cabot's geologists, it is then field-verified to ensure that Cabot has not placed the well location within the required set back distances from nearby buildings, directly on water sources, on property lines, or in designated and protected environmental areas. Once the field location is approved, a map is generated from a survey of the land that delineates the proposed well location, property boundaries, buildings, water sources, and nearby landowners with water supplies within 1000 ft of the surface location of the well. The coordinates of the proposed well on the map are then used in conjunction with public information from county court records and the state to compile a list of all the landowners within 2500 ft of the proposed surface location of the well. Cabot then mails notification forms to every landowner on the list within six months prior to drilling a well, informing them of the intent to drill and of the option of requiring Cabot to test nearby water sources prior to drilling.

The following are some frequently asked questions about the landowner notification process:

#### **1. *What exactly is on the notification?***

- Cabot's intent to drill in the area near the landowner's property and that the landowner has the option of requiring Cabot to test nearby water sources.
- Blank spaces in which the landowner may provide a current address, phone number(s), email, and number and the types of water sources to be tested on the landowner's property.

- Blank spaces for the landowner to fill out information about the water wells on the property. The reason for this is to help establish better documentation of water wells in Pennsylvania.

**2. *What if I have moved and no longer live at the residence listed at the county courthouse or public documents or it is my vacation home?***

- Should a notification be mailed to you and you have moved or it is your vacation home, Cabot recommends you ensure that your mail is forwarded to your most current address. This way any notifications that are mailed can go directly to your current address or forwarded to the updated address listed with the post office. Should you receive a notification that has your address listed as wrong once forwarded, please indicate your correct address in the space on the form that is provided when mailing it back to Cabot.

**3. *What if I never receive a notification form but I am a landowner within 2500 ft of the proposed well?***

- In the event that Cabot mails a notification form but receives that form back because it cannot be delivered or forwarded to a landowner, Cabot has its land department search again for the correct address information for that landowner.
- Should a new address be found, a new notification is sent to the new address. If it is returned again, then the process is repeated along with phone calls to the landowner's listed phone numbers. Cabot also attempts to visit the property and knock on a door and talk with neighbors to obtain the correct contact information for the landowner.
- Cabot will exhaust all options in an attempt to contact all affected landowners.

**4. *What if I am a tenant on the property and not the land owner?***

- All notifications will go to the landowner of record.
- The decision to test the water is up to the landowner, not the tenant.

**5. *What if I receive more than one notification?***

- Cabot sends landowner notifications for each well to be drilled. Should you receive multiple notification forms, please complete and return each of them to Cabot.
- If you have already had your water tested previously, this does not necessarily mean you don't need your water tested again. Groundwater conditions fluctuate naturally over time and testing your water again, prior to drilling a well will be necessary if your original test is older than six months. This is why some land owners may receive multiple notifications.
- If Cabot drills multiple wells on your property within a six month time frame, Cabot will test your water prior to commencing drilling the initial well, but not again during the six month period.

- If a period of six months or more has elapsed since Cabot drilled a well on your property, Cabot will be in contact with you again by phone to have your water tested again within six months prior to drilling the next well.

**6. What types of water sources will Cabot test?**

- Cabot will test all water sources identified by a landowner, which include but are not limited to, water wells, hand dug wells, springs, seeps, ponds, creeks, and streams.

**Water testing**

Cabot has worked with the Pennsylvania Department of Environmental Protection (DEP) and other oil and gas operators to establish a predefined set of water testing methods, which include tests for water quality indicators, biological factors, metals, dissolved gases, and petroleum constituents. Cabot currently has an independent state accredited laboratory that handles all of its water testing.

Here are some frequently asked questions about water testing:

**1. What are the exact items surveyed in the pre-drill water test?**

Currently, Cabot tests for the following:

Oxidation Reduction Potential (ORP)	Benzene, Toluene, Ethylbenzene and
Dissolved Oxygen	Xylenes (BTEX)
pH	n-Butylbenzene
Specific Conductance	sec-Butylbenzene
Total Suspended Solids (TSS)	Isopropylbenzene (cumene)
Total Dissolved Solids (TDS)	n-Propylbenzene
Alkalinity	1,2,4-Trimethylbenzene
MBAS	1,3,5-Trimethylbenzene
Chloride	p-Isopropyltoluene
Turbidity	Naphthalene
Sulfate	Ethylene glycol
Nitrate	Total Coliform
Oil & Grease	Fecal Coliform
Dissolved Methane	E. Coli
Dissolved Ethane	Hardness
Dissolved Propane	Sulfide

Total Metals: Arsenic, Barium, Cadmium, Calcium, Chromium, Lead, Iron, Magnesium, Manganese, Mercury, Potassium, Selenium, Silver, Sodium, Aluminum, Strontium

**2. *I returned my notification to Cabot to have my water tested, now what?***

- Cabot will have its water testing company contact you by phone with the information Cabot has on record or that you have provided Cabot on the returned notification. You and the water testing company will determine a date and time when it is convenient for you to have the water testing done.

**3. *What if I work odd hours or am not home when the water testing company calls?***

- Cabot has implemented a policy that landowners be contacted both before and after 5 pm to ensure that people who work during the day will be contacted. In the event that a landowner is not home to take the phone call, Cabot's water testing company is instructed to leave a message and a number that the landowner can return the call.
- If Cabot has not had a message returned within a couple of days of the initial call, another phone call attempt will be made before and after 5 pm. If no message can be left with the landowner, more attempts will be made over the next few days both before and after 5pm.
- Should a landowner not be reached over the course of a week by phone to schedule a water testing date, a person is sent to the property to knock on the door in person.
- Most landowners who return the notification form and indicate they wish to have their water tested and/or keep their addresses updated with the post office will not have these type issues.

**4. *What if I have winterized my house, am in the hospital, live in another state, or cannot be present at the time of testing?***

- If your house has been winterized and interior water sources have been shut off, the only way to test these water sources is to unwinterize. This may not be the best option for you, but it is your decision. In the event you decide not to unwinterize, Cabot will not be able to test at that time. Cabot will conduct water testing on your property prior to drilling the next well during a time when your water supply is turned back on.
- Exterior water sources such as creeks and streams will be tested regardless of whether your house has been winterized, unless they are frozen or dry.
- Landowners who wish to have their water supplies tested but are unable to be present during testing may provide Cabot's water testing company permission to enter onto the property or have a neighbor or relative permit Cabot's water testing company to enter the property. You do not need to be present at the time of testing, but Cabot will always ask for your permission to enter onto your property prior to testing.

### **5. *What if I share water from a well with my neighbor?***

- Both you and your neighbor will receive notifications.
- Both you and your neighbor will be provided with a copy of the water test results.

### **Additional frequently asked questions**

The following are additional questions members of the public might ask concerning Cabot's water testing program.

#### **1. *I didn't receive my test results?***

- It will generally take ~6-8 weeks between collecting a water test to mailing a copy of the results to you. If you have not yet received a copy of your results after this time, please call 412-249-3921 to notify Cabot.

#### **2. *How do I interpret my test results?***

- Cabot cannot interpret your test results. The only way to ensure that your water is safe to drink is to have the test results that are provided to you reviewed by a company that can interpret the results and advise you accordingly.

#### **3. *What may cause the water in my well to become bad over time?***

- Water quality is dependent on a multitude of factors that fluctuate daily to yearly. Some of the most common problems for bad well water in Pennsylvania stem from improper water well construction, improper or lack of water well maintenance, and proximity of the water source to potential contaminants such as garages/workshops, leaky septic systems, chemicals, and improper use of water treatment systems.
- The DEP website contains a list of documents concerning how to properly construct and maintain a water well. Landowners are encouraged to read this information to educate themselves on how to prevent water sources from becoming unsafe for use due to naturally occurring changes in groundwater over time.

#### **4. *How does Cabot protect groundwater other than testing?***

- Typically steel pipe, known as casing, is cemented into place at the uppermost portion of the well for the specific purpose of protecting groundwater. This steel pipe is called surface casing.
- The depth of the surface casing is generally determined by the location of aquifers in the area, among other factors. Multiple strings of surface casing can be used to ensure groundwater protection.
- As the well is drilled deeper, additional casing is installed to isolate natural gas producing formations from ground water.

- Casing and cementing are critical parts of the well construction that not only protect groundwater, but are also important to ensuring efficient production of natural gas from the well.
- Before fracturing begins, casing with cement surrounding the casing, is pressure-tested at pressures greater than those that will be used during fracturing operations. Additionally, a cement evaluation log using sound waves is conducted to determine if there are flaws in the integrity of the cement in the vertical portion of the well.

#### **5. *Who regulates Cabot's operations in Pennsylvania?***

- Cabot is regulated by federal, state and local agencies in Pennsylvania.
- The primary agency that Cabot interacts with is the DEP. The DEP regulates, permits, and enforces all natural gas exploration and production activities performed by Cabot in Pennsylvania.
- The DEP regularly inspects Cabot facilities to ensure compliance with state law, and investigates any complaints or incidents with respect to such facilities.

### **Air Quality Protection**

#### **1. *Have any studies been performed on the impact to air quality in Northeast Pennsylvania as a result of the Marcellus drilling activity?***

- The attached document is a report prepared by the Pennsylvania Department of Environmental Protection studying the impact of drilling activity in Northeastern Pennsylvania. The following statement is the key finding of the report: "Even though constituents of natural gas and other associated target compounds were detected, the screening results found to date do not indicate a potential for major air related health issues associated with the Marcellus Shale drilling activities."

[Click here to view Pennsylvania Department of Environmental Protection document](#)

#### **2. *What has Cabot done to maintain the air quality in the Susquehanna County, Pennsylvania area?***

- Cabot's compressor facilities are designed and constructed to meet the Best Available Technology (BAT) standard. The BAT standard is defined in 25 PA Code 121.1 as equipment, devices, methods or technologies as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available.