



DAMASCUS CITIZENS FOR SUSTAINABILITY
CLEAN WATER, AIR AND LAND ARE BASIC HUMAN RIGHTS

Dear friends:

We are writing to ask if you would participate in a test for radon from the natural gas you use to cook on your stove. This year, Damascus Citizens for Sustainability (DCS), is sending this letter and turning to you in hopes of getting 50 or 100 tests conducted during this current month of March. There is a history to this citizen testing - tests have been conducted in each of the last three years measuring radon levels in NYC kitchens in the five boroughs and we are offering the tests this year. Your participation will provide this year's data.

Why is this important? **Radon is a radioactive gas** and a known carcinogen, a cause of lung cancer second only to cigarettes. Below is a fuller description of why radon is something you do not want in your home.

These tests are easy to accomplish. DCS is purchasing 100 kits which cost \$15 each. We would appreciate your paying for your test when you pick up the kit or order it from DCS. You follow the included instructions and leave the kit up for at least 3 days at breathing height (no more than 7 days). It is highly important that **you do not open windows** because the air movement will modify the test results and your test will have been done in vain. When your days of testing are over, you mail the test kit to the laboratory. Please carefully follow test starting and ending instructions as shown in the folded paper. The test company will send your test results back to you. Envelope is postage paid.

Test kits are available here:

Buck Moorhead Architect, 245 West 29th St Room 1203, Manhattan.

Times for the week of March 16 to 20...only

Monday 5pm-7pm

Tues 4pm-6pm

Wed 12pm- 2pm

and **Fri 10am-12pm**

You can also get a **test kit mailed to you from DCS** and pay \$15 either via the DCS Donate page:

<http://www.damascuscitizensforsustainability.org/donate-now/>

or mail a check to our Narrowsburg office:

DCS

PO Box 35

Narrowsburg, NY 12764

The **test starting instructions** are very important, please read them.

Your participation acknowledges DCS can use the resulting numbers of the test, it will not use your name.

25 Main Street
P.O.Box 35
Narrowsburg, NY 12764

Phone 845-252-6677

dcs@DamascusCitizens.org

If you have questions, please email dcsc@DamascusCitizens.org

Our best regards,
B. Arrindell
DCS
DamascusCitizens.org

For further information about radon in our homes, please see information below and this link to six videos of the radon forum at Cooper Union, <https://www.youtube.com/watch?v=W62quHg4xZo&list=PL5ZivUpU2rIFyetz942AHLVpq-w5YMfda&index=1>

RADON DESCRIPTION: Radon is present in natural gas in varying amounts depending on the source of the gas and the travel time it takes from the wells where it is produced to the place where it is used, such as your home. Radon does not burn but passes into the air in your home when gas is flowing to your stove, clothes dryer, space heater and any other gas powered appliances in your home that is not directly vented to the outside. The only ways to get the radon out of the gas are to store it long enough for it to decay by radioactive emissions or to chill it to a temperature where it will change from a gas to a liquid, and condense out of the natural gas. Until recently, the gas used in the New York City area had relatively low levels of radon. This started changing in late 2013 when gas from the Marcellus shale gas areas of Pennsylvania, West Virginia and Ohio started flowing into the gas distribution lines that deliver gas to you. Before then, the average levels of radon in the delivered gas were 1.5 picocuries per liter or less; radon levels in Marcellus gas when it reaches the distribution system in the City and surrounding service areas are significantly higher, averaging 37 picocuries per liter and ranging as high as several hundred picocuries. EPA recommends active venting at levels of 4 picocuries or more. The public health risks from radon in the gas were part of the reason Governor Cuomo banned fracking in New York. The test results for the last two years generally showed very low levels of radon, with most results at or below the 0.3 picocuries per liter limit of detection of the sampling method. Now in 2015, there has not been any more recent investigation and reporting of radon levels. It is important to continue testing using the same testing methods and the previous procedures to provide consistency. Further, there is no rule or practice to monitor radon levels in NYC yet by the gas companies or the government. The EPA action level for radon mitigation is 4pc/L (picocuries per liter), and the World Health Organization (WHO) sets the actionable level at 2.7 pc/L, so results above 1pc/L get our attention.

RADON IN NATURAL GAS IN NEW YORK CITY

Radon

1. Radon is a tasteless, odorless, colorless, naturally occurring radioactive noble gas created by the radioactive decay of uranium, thorium and radium. It does not react with other elements. It does not burn and can only be destroyed by radioactive decay.
2. Radon (^{222}Rn) has a half-life of 3.8 days. It decays by alpha and beta particle emission until it becomes the stable isotope of lead (^{206}Pb). Two decay products are radioactive solids, polonium ($^{210, 214, 218}\text{Po}$) and lead ($^{210, 214, 218}\text{Pb}$).



²¹⁴Pb). Polonium decays by alpha particle emission; lead decays by beta particle emission to create the radioactive Polonium isotopes.

3. Radon and its radioactive decay products enter the body primarily through inhalation. Most of the radon is exhaled prior to radioactive decay while most of the solid radioactive polonium and lead remains in the lungs and will further decay to cause cancer.
4. Radon is the leading cause of lung cancer among non-smokers and the second leading cause among smokers. EPA attributes 21,000 lung cancer deaths per year on a nationwide basis to radon exposure.
5. Although zero is the only “safe” level for radiation exposure, EPA urges mitigation for anyone with indoor levels at 4 picoCuries per liter and recommends mitigation beginning at 2 picoCuries per liter.
6. Radon is present in all natural gas from deep shale formations but levels vary considerably from one field to another. Available studies report that dark shales (eg. Marcellus) are more radioactive.

Current Radon Exposure Levels in NYC Metro Area

1. Most natural gas consumed now in NYC metro area is from the Texas-Louisiana Gulf Coast and has a radon level at the well head of about 5 - 10 pCi/l according to published studies.
2. Transit time to NYC metro area is 6 to 8 days.
3. Average radon levels in gas currently delivered to NYC metro area apartments should be 1 to 2 pCi/l or less.

Future Radon Exposure Levels in NYC Metro Area with Marcellus Shale Gas

4. Existing studies show Marcellus shale gas average radon level at well head is 150 to 160 pCi/l.
5. Transit time to NYC metro area is approximately 15 to 20 hours depending on location of well, pipeline route, and transmission speed.
6. Average radon level in Marcellus gas delivered to NYC metro area apartments will be about 125 pCi/l.
7. Exposures to the elevated radioactivity levels in Marcellus gas will result in thousands of additional lung cancer deaths over time in NYC metro area.

Options to Protect Public Health

8. Continue to use Gulf Coast gas; do not allow use of Marcellus gas.
9. Store Marcellus gas long enough to decay to much less than 4 pCi/l before distribution. Adding the required type of storage would be expensive.
10. Refrigerate Marcellus gas to liquefy radon without liquefying the methane. The liquids will continue to be radioactive. This option would be expensive.

Jeff Zimmerman (jjzimmerman@comcast.net) or (240) 912-6685 (office) or (2 for Damascus Citizens for Sustainability, Inc. and NYH2O, Inc.

For further information:

<http://www.damascuscitizensforsustainability.org/2012/05/new-yorkers-to-have-radon-with-dinner/>

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P.O.Box 35
Narrowsburg, NY 12764

Phone 845-252-6677

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