

## **NMED Response to Clovis City Commissioner Ladona Clayton October 23, 2018**

### **QUESTIONS ON POSSIBLE WATER CONTAMINATION SOUTHEAST OF CAFB**

1. Where is the exact area of possible impact? I know a 4-mile radius outside the base boundary has been reported, but what is the center point of the 4-mile radius?

**NMED Response: Initially, NMED advised residents to use bottled water or effectively treat their well water if they resided within 4 miles of the base's property boundary. Based on what we know now, the highest levels of contamination are in groundwater in the southeastern corner of Cannon AFB (CAFB). Regional groundwater is moving to the southeast from that point. Today, we understand from the USAF that 1) they will be issuing a press release Wednesday October 24, 2018 and 2) based on test results to-date and the known direction of groundwater movement off the base, USAF considers the area of concern a triangular section beginning at the base's southeast corner and extending to the southeast. NMED will continue to work with the USAF, and others to further clarify this matter and make the public aware of what we determine.**

2. Were any EPCOR wells contaminated?

**EPCOR's Response: None of EPCOR's Clovis production wells fall within the four-mile radius of the area of concern – the water EPCOR delivers is safe to drink.**

3. Where are the EPCOR wells actually located?

**EPCOR's Response: EPCOR maintains over 70 production wells in and surrounding the City and none are in the impacted area.**

4. Were the city's J.L. Wall wells contaminated?

**NMED Response: We do not believe any city wells have been impacted.**

5. Is EPCOR offering any testing for private well owners out in the county?

**EPCOR's Response: No, this requires a specialized lab and EPCOR understands that NMED and the NM Department of Health are exploring ways to provide private well testing.**

6. How long does it take to perform a well test for contamination and how long before the results are available?

**NMED Response: Sampling of a well can be done in a matter of an hour or so. There are complications with the actual sampling techniques and protocols that must be used to prevent the sample from being inadvertently contaminated. There are very few commercial laboratories equipped to analyze samples for PFAS. Timing on analysis depends in part on the workload at the lab, but preliminary results can usually be ready in three to four weeks.**

7. Who do we call if we have our well(s) tested and they come back contaminated?

**NMED Response: Please call NMDOH at 505-827-0006.**

8. If our wells are contaminated, what type of filtration or treatment will rid our water of this particular contaminate?

**NMED Response: There are several established and effective forms of treatment that are readily available to treat well water. Among those types of treatment are: reverse osmosis, granular activated carbon, powdered activated carbon, anion exchange and advanced oxidation.**

**Additional information on these methods is available here:**

**[https://nmtracking.health.state.nm.us/environment/water/private\\_wells/Treatment.html](https://nmtracking.health.state.nm.us/environment/water/private_wells/Treatment.html)** . This information will also be included in a

**Frequently Asked Questions (FAQ) document that NMED and NMDOH**

**will provide to residents living near Cannon AFB. The NMDoH web page will be updated soon to include a treatment table.**

9. Can a plume of contaminated water travel beyond the 4-mile radius identified thus far? If so, is it possible it will make its way to city wells or city wells owned by EPCOR?

**NMED Response: While it is possible for PFAS to travel beyond a 4-mile radius from the Cannon AFB, we intend to base decisions on additional well testing and remediation of the contamination on what we know at each step, including test results obtained thus far and what is known of the geology and movement of groundwater in the immediate area.**

10. Were there any dairies or farming wells contaminated? If so, how do we know the milk from those dairies was not delivered to the cheese plant for human consumption?

**NMED Response: At this time USAF has advised us that two dairies have been impacted. Based on the sale of milk in the Clovis area, it is possible that milk, cheese and meat may have been impacted as well. However, there are no health-based criteria for PFAS in foods in New Mexico at this time. New Mexico Department of Agriculture has asked the U.S. Food and Drug Administration to establish such criteria as soon as possible.**

11. What about crops (feed for livestock) being watered with contaminated water?

**NMED Response: Based on scientific studies, crops can absorb PFAS. If those crops are fed to livestock, it may increase the risk to livestock and what they produce (e.g., milk, meat). Until there are FDA-established human health-based levels for food products, NMED, NMDoH and NMDA believe any actions taken now regarding the impacted dairies would not be based on the known science and would therefore be premature.**

12. What are the ramifications for pregnant and nursing mothers, as well as newborn babies and those still in the womb?

**NMED Response: The use of bottled water, or effectively treated water, is especially important for women who are pregnant, planning to become pregnant, breastfeeding, and bottle-fed infants. There are several health effects from PFAS that may affect women and the young, including an increased risk for high blood pressure, pre-eclampsia in pregnant women, and decreased infant birth weight.**

Table 1: List of Water Treatment Options for Removal of PFOA and PFOS

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Treatment Type	Notes	Application	PFOA	PFOS
Membrane Filtration (Reverse Osmosis (RO) and Nanofiltration)	Multi-contaminant removal. Waste/by-products must be managed. Mineral addition may be necessary.	Private Wells Households (RO) Groundwater, Surface Water	>90%	>90%
Granular Activated Carbon (GAC)	GAC is the most common treatment method for PFAS removal. Presence of other organic compounds may reduce effectiveness.	Private Wells Households Groundwater, Surface Water	>90%	>90%
Powdered Activated Carbon (PAC)	High concentrations of PAC are necessary. Required high concentrations may make this an infeasible option for water treatment. Waste residuals may create a challenge for disposal of waste products.	Private Wells Households Groundwater, Surface Water	>90%	>90%
Anion Exchange	Single-use systems require replacement and proper disposal. Regenerable systems produce brine that must be disposed of responsibly; such systems are automated, have small footprints and high regeneration efficiencies. Competition with naturally occurring minerals can impact effectiveness.	Groundwater, Surface Water	10- 90%	>90%
Advanced Oxidation (UV/H <sub>2</sub> O <sub>2</sub> ; UV/S <sub>2</sub> O <sub>8</sub> )	Low removal rate. Can destroy pollutants to produce less complex compounds. Other organic contaminants will reduce efficiency.	Groundwater, Surface Water	<10%	<10 - 50%

Note: adapted from: NGWA document: *Groundwater and PFAS: State of Knowledge and Practice* (member available document). Table Source Cheremisinoff 2016.