

Midwest Research Corp.

P.O. Box 2256 Fairfield, IA 52556
Ph: 641-472-5005 Fax: 208-474-5445
Web: mrtel.com, rfreduce.com

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Mayor Ed Malloy and the Fairfield City Council
City Hall
Fairfield, Iowa
Ladies and Gentlemen:

This letter is in regard to the citizen concerns for health and safety in the presence of the wireless water meters that Fairfield has been installing.

My full resume is available online (please see reference 2 below for that link). In short, I have a degree in Electronic Engineering from the University of Virginia. I have more than 40 years hands-on research, design, and measurement experience in the military aerospace arena, with a strong emphasis on measurement and characterization of electromagnetic fields (EMF), including the design of measurement instrumentation for use by the military. I was an R&D engineer in the spacecraft design group at the U.S. Naval Research Laboratory for 22 years. I continue this EMF measurement and EMF-reduction work today with products that reduce cell phone radiation to the head and reduce so-called dirty electricity.

Any time an issue like this surfaces, my phone rings off-the-hook and my email mailboxes fill up.

I intend this letter to be a simple and honest statement of facts, observations, and concerns, without exaggeration or embellishment, and would be glad to answer questions if you have them. Also, to avoid confusion, please note that Radio Frequencies (RF), is simply another name for electromagnetic fields (EMF).

1. Are EMF Levels A Problem At All?

The Federal Communications Commission (FCC), the Occupational Health and Safety Administration (OSHA), the US Army, Navy and Air Force, among many others, all have maximum exposure standards for RF (EMF) because they believe exposure can be damaging to human health. Clearly, if we give these organizations credibility, then we must come to the same conclusion that EMF can cause human health problems.

2. The Wireless Water Meter Transmits Every 14 Seconds

In case there is any lingering question about the operation of the wireless water meter in question, the company's brochure states that the E-Coder®R900i™ utilizes the R900® radio frequency meter interface unit, which transmits data every 14 seconds. It is not a one-time daily or monthly transmission (see reference 3).

3. Experts Need To Assess The Potential Risks

To address the question of whether the wireless water meter in question poses a health risk: in my view you cannot look solely at whether the device in question is within FCC guidelines for individual devices. You need at least two kinds of experts, one who understands electromagnetic fields (an Electronic Engineer or Physicist) and another who understands biology/physiology (a biologist, physiologist, medical practitioner, etc.). You need both of these experts – working together.

Introducing thousands of EMF emitting water meters is a massive imposition of EMF in the community as seen by a scientist - at least to this scientist. It is an influence that “gets into the human body” and it does not appear that the city has commissioned independent experts to assess the health and safety implications. The city, for example, may even have a lack of understanding on the “the skill set” required to assess the problem by its continual focus on the “average power” and “heating effect” of EMF-in-the-human-body, rather than the “pulsed effect.”

It has been voiced again and again by those who are down-playing the potential dangers of this new wireless deployment that there are wireless Internet router/firewalls, cell phones, and the like around town, so why not add the water meters. But the water meter project is massive and involves thousands of such meters, and this is an action by the city, not individual action.

In addition to the “pulsed effect” mentioned above, there is the matter of the aggregate of the EMF of thousands of wireless water meters. Do you know the long term effects of this aggregate? If you are unaware of this, it does not mean that the city should ignore this potential problem. If a company offers a new chemical to add to drinking water to improve quality, but the chemical has not been seriously studied, would you allow that to be added to the drinking water in Fairfield? Probably not. The city has a responsibility not to take action potentially harmful to its citizens and in my opinion should follow the precautionary principle referred to below in the Summary.

4. Citizen Objections Are Being Downplayed

It is my opinion that many comments have been made by city officials or others supporting the wireless water meters and other so-called smart meters that downplay the potential seriousness of EMF proliferation.

For example, I have heard expressions that “The wireless water meter transmitter is only on for 44 seconds per day. How could something with such a small on-time cause a problem?” However, small contaminant levels are known to be dangerous in numerous scientific settings. An EMF transmitter on-time of 44 seconds for a water meter is a fraction of the day (86,400 seconds per day gives a fraction of 44/86400 of the day) that equals 0.051 % of the day. At the same time the EPA limit for vinyl chloride in drinking

water is 2 ppb (parts per billion) 0.0000002% (See reference 1), **which is 250,000 times smaller than the 0.051% level.**

The point here is very simply that a number being “small” or a measurement of “something” being a “small percentage,” does not mean that it is insignificant or that it could not, or should not, be a source of concern. If the water department is engaged, day-by-day with controlling exceptionally small amounts of foreign substances in the drinking water, that, if not eliminated, would get into the human body, it is inconsistent and not scientific for the water department to disregard and dismiss EMF, **which gets into the body as well**, based upon the premise that it is “too small of a percentage to be a problem.”

In the end, the idea, the statement: “0.051% is such a small number, that it probably could not cause a human health problem” is a statement of no meaning, and no significance in science.

5. Individuals Expressing Ill Health Should Not Be Dismissed Lightly

Anecdotal reports of health problems typically precede scientific measurements quantifying the precise degree of risk. If the individuals who have expressed their experiences of ill health in the presence of this wireless water meter are being disregarded by the city, I believe that is a serious mistake. These people are, in my view simply electro-sensitive. They are not wierdos or troublemakers, and should not be so regarded. They are simply *the canaries*: persons who should be highly valued for their sensitivity like the canaries taken down into the coal mines who are early warning signs for danger to human health.

6. Summary

The ultimate question is, whether the massive deployment of EMF in Fairfield constitutes a human health problem as it is planned to be installed.

In my opinion, the answer is: **You don't know.**

- The deployment of the wireless water meters is a massive undertaking. It is the provisioning of constantly pulsing (every 14 seconds, 24 hours per day) EMF transmitters into almost every home and business. Even as people opt-out, the background EMF from the neighboring wireless meters will overflow into all dwellings.
- It appears that the roll out of these meters so far has been done without the knowledge or permission of the Fairfield citizens.
- Is it possible that this EMF deployment could negatively affect the “green” quality of Fairfield and result in Fairfield looking like a “hot spot to avoid” rather than a “haven of health.”?

- Here is the Precautionary Principle mentioned previously.

“The precautionary principle or precautionary approach states that if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of proof that it is not harmful falls on those taking the action.

This principle allows policy makers to make discretionary decisions in situations where there is the possibility of harm from taking a particular course or making a certain decision when extensive scientific knowledge on the matter is lacking. The principle implies that there is a social responsibility to protect the public from exposure to harm, when scientific investigation has found a plausible risk. These protections can be relaxed only if further scientific findings emerge that provide sound evidence that no harm will result.”

(See Reference 4 for the link to this principle at wikipedia.org)

I hope this has been helpful. I would be glad to answer questions of the council or any independent group conducting an evaluation.

Sincerely,

Robert E. Palma
President, Chief Engineer

References

1. EPA Vinyl Chloride maximum contaminant levels can be found at: <http://water.epa.gov/drink/contaminants/basicinformation/vinyl-chloride.cfm>
2. Robert Palma’s resume can be found here: <http://robertpalma.com>
3. The water meter’s brochure information can be found here: http://neptunetg.com/userfiles/file/products/E-Coder%29R900i/12-NTG-168%20PS%20ECODER%29R900i%2005_12.pdf
4. Precautionary Principle, http://en.wikipedia.org/wiki/Precautionary_principle