Craig Daniels
PO Box 861
North Bend, Oregon 97459 (all USPS, UPS, FedEx) <**craigeroochi@outlook.com**>

January 4, 2020 -and onward (re: radiation monitoring efforts
(draft) & my page at: **https://57296.neocities.org/rad.htm**)

To: interested parties

* Although background radiation levels have been normal for years, and it's been nearly 9 years since the events at Fukushima began (which are on-going), trouble is brewing in Iraq --and we might be on the verge of a nuclear confrontation with North Korea. It seems worth our while to review what volunteer and network resources we have, taking what measures are easily within reach to make our efforts more substantial and publicly accessible.

*** I encourage your feedback/criticisms --which will likely result in revisions to this letter.**

* I'll try to not get too deep "into the weeds" --easy to do with these issues, especially since I'm not an expert concerning radiation and can quickly get out of my depth.

* My general view: A good, basic, active, disciplined^ gamma radiation monitoring network might not only alert us to events and avert wider tragedies, an archived and accessible record that spans years and discerns regionally might prove to be an invaluable data resource.

^ * What kills the potential value of our work: paywalls, poorly vetted alerts/false alarms, meaningless and poorly defined numbers, poorly maintained stations, no uniformity (in station construction, sensors, procedures and units of reportage) within a network.

Paywalls: As news services like the Washington Post and the New York Times are finding out, and as The Guardian points out, restricting public access via a paywall serves only to marginalize sources. Let's not stress about someones somewhere "getting something for nothing", and instead focus on integrity and keeping a network sustainably affordable to operate instead.

Alerts: False and meaningless alarms simply destroy our best efforts. Alarms must be verified (via an established procedure) before they go to authorities and the public. (Most of our system alerts are local and due to non-menacing factors.)

Statistical spreads: Counts (per minute, per hour, per day) have a built-in "noise" factor of random variability. Individual CPMs from a small (low count rate) G-M tube can vary quite a bit, while CPMs averaged over an hour show only small excursions from the station's over-all (weeks long) average.

Report Units: We've been using dose units (uSv/hr, uR/hr) for lack of another way to equate the readings we report from a diversity of Geiger counters. Even official agencies use dose units. Micro-Sieverts and micro-rems only have meaning at a certain assumed human body distance from a calibrated cesium-137 gamma source. A "click-click-click" from an unspecified beta(?)/unknown source at an undefined distance -- has nothing to do with whole body radiation dose units. Let's report only what we actually know: "click-click-click", and how many more "click-click-clicks" than is normal for a given station, as percentages.

Humility: We don't know, especially at our prevailing/normal low "background" levels, what we are counting. (Many of our G-M counters and their sensors use tubes with specified "noise" figures that far

exceed the "0.10 uSv/hr" (= 10 uR/hr) which we usually measure. And of such indicated levels, how much is due to ambient radiation? How much is due to cosmic sources? (Here's my take on that:
> **https://57296.neocities.org/rad.htm#question**

--but neither do I claim to know what we're counting.)

Sensors: Elevated gamma counts can be a confusing local phenomenon. Beta and alpha counts are even more so. Separate equipment and procedures (say: a standardized air filter setup and a pancake tube G-M counter, or maybe a scintillator device, gamma signatures and a "lead castle") are needed to manually and meaningfully report on substances which emit beta and alpha. Otherwise, everyone in a given network, especially one with automatic (Internet) reporting, should be using a similar, affordable G-M tube device with light (anti-beta) aluminum shielding. (Hard beta still gets through, of course.)

Station construction: "Window sill", pocket and mobile monitoring should not be part of a monitoring network, especially if it's automated. IMO: we need to affordably emulate the fixed sensor housings used in Germany. They're cable connected/powered, waterproof, steep "roofed" (easily shed water/deposits), desiccated, battery backed-up, and located (as possible) in a clear area, away from activity.

Network system: Thanks to "Neocities", we all have access to free web space --but unless a network is to be based on individually posted graphs in a standard format (like I do, but all linked from a hot-linked sentral map), I have to leave this sort of thing to talented others. **Mineralab's** Internet system

> http://www.radiationnetwork.com/

--would be excellent, were it to display simple, 2 dimensional line graphs, be based on standard (not windowed/pancake) G-M counters in outside housings, be publicly (and passively, of course) accessible with archived histories per station, and report per station levels as percentages of each station's base line average.