BREAKTHROUGH INSTITUTE

July 06, 2023

To: Honorable Mayor and Members of the City Council

From: Dr. Seaver Wang and colleagues at the Breakthrough Institute

Subject: We Strongly Oppose Councilmember Harrison's Symbolic and Non-Scientific Proposed Resolution Criticizing the Government of Japan's Planned Discharge of Wastewater from the Fukushima Daiichi Nuclear Power Plant.

Any visitor walking along Berkeley's sunny streets will read the same message posted in front of house after house, in window after window: "In this house we believe science is real." With Berkeley hosting one of the nation's proudest public universities and a prestigious National Laboratory, this communal respect for the scientific method and for critical analysis should surprise nobody.

As such, we find it highly disappointing that Councilmember Kate Harrison has recently proposed a new resolution calling for the city of Berkeley to formally oppose Japan's planned discharge of objectively harmless wastewater from the Fukushima Daiichi Nuclear Power Plant.

Councilmember Harrison's resolution grossly overstates the negligible risks posed by the release of treated water from the Fukushima facility. If the average person were to drink 2 liters of water per day directly from the planned Fukushima releases (following desalination) for a full year at the planned upper limit concentration of 40,500 picocuries/liter (1500 bequerels/L)[1], their total added dose of radiation would be 0.0197 millisieverts (Sv)[2], the equivalent of less than one-fifth the dose of a medical chest X-ray (0.1 mSv)[3], and approximately the added radiation exposure from a single 5-hour coast-to-coast airline flight (0.02 mSv).[4] The planned Fukushima release is already around just one-seventh of the World Health Organization's threshold for tritium in drinking water.[5]

Dilution of the Fukushima release by a little over a factor of two would put the release well below the U.S. Environmental Protection Agency's threshold for tritium in water of 20,000 pCi/L. Needless to say, the vast Pacific Ocean is approximately 700,000,000,000 times larger in volume than all the stored wastewater at Fukushima, which would in any event only be released gradually over the span of decades. Scientific measurements will struggle to detect any signal from the released water relative to naturally-occuring background radiation in seawater even within a few tens of kilometers of the release. In their final report

---

[1] International Atomic Energy Agency. "IAEA Review of Safety Related Aspects of Handling ALPS-Treated Water at TEPCO's Fukushima Daiichi Nuclear Power Station: Report 5: Review Mission to NRA." 2023.

[2] 730.5 liters × 1500 Bq/L × 1.8E-11 Sv/Bq (dose coefficient for tritium, in Sv/Bq, from *Radiological Aspects*. World Health Organization, 2022. https://www.ncbi.nlm.nih.gov/books/NBK579448/)

[3] Harvard Health. "Radiation Risk from Medical Imaging," September 22, 2010. https://www.health.harvard.edu/cancer/radiation-risk-from-medical-imaging.

[4] Friedberg, W; Copeland K (2011). "Ionizing Radiation in Earth's Atmosphere and in Space Near Earth" Civil Aerospace Medical Institute, Federal Aviation Administration, DOT/FAA/AM- 11/9.

[5] "Is Fukushima Wastewater Release Safe? What the Science Says." Nature 618, no. 7967 (June 22, 2023): 894–95. https://doi.org/10.1038/d41586-023-02057-y.

2054 University Ave
Suite 500
Berkeley, CA 94704

info@thebreakthrough.org
www.thebreakthrough.org

reviewing the safety of water treated at the Fukushima power plant, the International Atomic Energy Agency determined that the planned release will "have a negligible radiological impact" and is "consistent with relevant international safety standards."[6] My colleagues and I at the Breakthrough Institute would be happy to drink the treated water, if provided, at a future City Council meeting to publicly demonstrate that the water is entirely safe.

By the time any water molecules from the coast of Japan reach the coast of California, a oceanic circulation process requiring around 2-3 years,[7] no scientific instrument on Earth will be able to distinguish any remaining additional radioactivity from the release. Clearly, Councilmember Kate Harrison's claim that the release "could impact millions of lives and livelihoods in the Pacific region" and "imposes considerable risks to environmental and human rights across the globe" amounts to nothing but sheer political theater. The risk to Berkeley "residents and businesses" is, quite literally, zero.

We further note that many of the experts and organizations that Councilmember Harrison has chosen to quote represent explicitly anti-nuclear advocacy groups, including Greenpeace International, Friends of the Earth, and No Nukes Action. These single-mindedly traditionalist activist organizations have remained ideologically opposed to the promise of clean nuclear energy for helping societies worldwide act against climate change. Their critique of the planned Fukushima release is primarily intended to stigmatize nuclear energy. Councilmember Harrison's draft resolution meanwhile ignores a vast array of scientifically rigorous and open-minded researchers, more forward-thinking advocates, and institutions that support clean nuclear power as a critical tool alongside wind, solar, batteries, and other low-carbon energy sources in decarbonizing the global energy system.[8]

In response to Councilmember Harrison's invocation of social justice, we assert that anti-nuclear misinformation represents the far larger and more real injustice faced by Japanese, Asian, and Pacific peoples because of the exaggerated discourse on the Fukushima water release issue. Anti-nuclear activists, playing to radiation-related historical traumas and vastly inflating the public health and environmental risks posed by the release, have inflicted and continue to inflict undue anxiety upon communities across the Asia-Pacific, while threatening economic harm to the peoples of Fukushima, Miyagi, and Ibaraki Prefectures in Japan. These organizations would celebrate the shutdown of nuclear power stations across Asia, even if this prolongs the continued operation of fossil fuel power plants that contribute to climate change and would directly sicken more Japanese, Korean, or Taiwanese people from air pollution.

We strongly urge the other members of the Berkeley City Council to reject Councilmember Harrison's empty resolution in the most forceful terms. And we rebuke Councilmember Harrison for occupying the city's public agenda with a resolution that is at best political grandstanding, and at worst environmentally counterproductive and harmful to social justice.

Sincerely yours,

---

[6] International Atomic Energy Agency. "IAEA Finds Japan's Plans to Release Treated Water into the Sea at Fukushima Consistent with International Safety Standards." July 4, 2023. https://www.iaea.org/newscenter/pressreleases/iaea-finds-japans-plans-to-release-treated-water-into-the-sea-at-fukushima-consistent-with-international-safety-standards.

[7] "Ocean Surface Currents | Manoa.Hawaii.Edu/ExploringOurFluidEarth." Accessed July 2, 2023. https://manoa.hawaii.edu/exploringourfluidearth/physical/atmospheric-effects/ocean-surface-currents.

[8] Build Nuclear Now. "Build Nuclear Now." Accessed July 2, 2023. https://www.buildnuclearnow.org.

2054 University Ave
Suite 500
Berkeley, CA 94704

info@thebreakthrough.org
www.thebreakthrough.org

Seaver Wang, PhD. Earth and Ocean Sciences
Co-Director, Climate and Energy
The Breakthrough Institute
seaver@thebreakthrough.org

The Breakthrough Institute
2054 University Ave Suite 500
Berkeley, CA 94704
www.thebreakthrough.org