



January 13, 2023

Alaska Community Action on Toxics, Fairbanks Climate Action Coalition, and Native Movement provide these comments in response to the Alaska Department of Environmental Conservation's notice and request for input concerning the "Siting of Microreactors - Public Scoping for Regulation Development."

Alaska Community Action on Toxics (ACAT) is a statewide non-profit environmental health and justice research and advocacy organization based in Anchorage whose mission is to ensure clean air, water, and toxic-free food for everyone.

Fairbanks Climate Action Coalition (FCAC) mobilizes Fairbanks and Interior Alaska communities toward actions that elevate climate solutions and foster a fair, equitable, and just transition to sustainable communities.

Native Movement is an Alaska-based organization that is dedicated to building people power, rooted in an Indigenized worldview, toward healthy, sustainable, and just communities for all.

As an initial matter, we request that ADEC extend the deadline for commenting on these regulations, as the public notice was released right before the holidays and did not allow enough time for the public to meaningfully engage. Additionally, we request that once ADEC has a draft of the regulations, it provide a minimum of 60 days for public comment on the draft regulations. We further request that ADEC meaningfully respond to all public comments received. ADEC also has an obligation to consult with Tribes on its draft regulations before finalizing them, which will likely require a longer timeline.

Our organizations are strongly opposed to the siting of so-called "micronuclear" reactors in Alaska. Nuclear energy is a false solution for our energy needs and the climate crisis that is dirty, dangerous, and expensive. Nuclear power is destructive and risky throughout its cycle, from the mining of uranium to the enrichment process to the operation of reactors to the untenable problems of disposal of radioactive waste.

Uranium must be mined to create nuclear energy, and then the uranium must go through a process of enrichment. Uranium mining produces radioactive waste that causes cancer and other diseases for workers and people living in communities in proximity to the mines. This burden has been borne disproportionately by Indigenous peoples in the United States because mines have predominately been on Indigenous lands. Uranium mining has extensive and pervasive effects, including the contamination of the environment and communities with radioactive dust,

radon gas, water-borne hazards, and increased levels of background radiation.¹ As highlighted in a peer-reviewed paper authored by medical experts: “There are no boundaries for air and water; the addition of long-lived radioisotopes anywhere in the environment eventually affects the health of everyone.”² Uranium mining contaminates air, water, and soil. In addition to cancers, studies have established health effects of uranium including nephrotoxicity, genotoxicity, and developmental defects, as well as adverse effects on the brain, reproductive system, and gene expression.³ Many of these adverse effects are irreversible and cumulative.

Like uranium mining, uranium enrichment poses grave risks to human health. Uranium enrichment plants, which are located predominantly in Black, Indigenous, and other People of Color communities,⁴ have a long history of leaks and spills.⁵ ADEC must take into consideration the entire destructive cycle of nuclear energy and decide against siting nuclear reactors in Alaska.

Micronuclear reactors themselves pose fundamental health and safety concerns for Alaskans. In a report about the safety of “advanced” nuclear reactors, the Union of Concerned Scientists (UCS) determined that “Nuclear technology [including micronuclear reactor technology] has fundamental safety and security disadvantages compared with other low-carbon (renewable) sources. Nuclear reactors and their associated facilities for fuel production and waste handling are vulnerable to catastrophic accidents and sabotage, and they can be misused to produce materials for nuclear weapons.” Even a very small reactor contains enough radioactive material to cause a big problem if it is sabotaged, and none of these reactors have demonstrated they are so safe that they can function without operators. A single microreactor core would contain about 10 nuclear weapons’ worth of nuclear and radioactive material.⁶ On Jan. 6, 2022, the Nuclear Regulatory Commission determined that Oklo, a developer of micronuclear reactors, failed to provide sufficient information on topics such as potential accidents and certain safety systems of its micronuclear reactor design,⁷ which is similar to that of other micronuclear reactor designs. Micronuclear reactor vendors are pushing to reduce or even eliminate personnel such as

¹ Dewar D, Harvey L, Vakil C. 2013. Uranium mining and health. *Can Fam Physician*: 59(5):469-71.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3653646/>

² Dewar D, Harvey L, Vakil C. 2013. Uranium mining and health. *Can Fam Physician*: 59(5):469-71.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3653646/>

³ Brugge D, Buchner V. 2011. Health effects of uranium: new research findings. 2011. *Rev Environ Health* 26(4):231-49. doi: 10.1515/reveh.2011.032. PMID: 22435323.

⁴ Report of the Union of Concerned Scientists (2020). “Advanced” Isn’t Always Better: Assessing the Safety, Security, and Environmental Impacts of Non-Light-Water Nuclear Reactors.

<https://www.ucsusa.org/about/news/report-advanced-nuclear-reactors-no-better-current-fleet>

⁵ See https://climatefalsesolutions.org/wp-content/uploads/HOODWINKED_ThirdEdition_On-Screen_version.pdf.

⁶ This refers to the Oklo design which is similar to other micronuclear reactor designs. In: Report of the Union of Concerned Scientists (2020). “Advanced” Isn’t Always Better: Assessing the Safety, Security, and Environmental Impacts of Non-Light-Water Nuclear Reactors.

<https://www.ucsusa.org/about/news/report-advanced-nuclear-reactors-no-better-current-fleet>

⁷ <https://www.nrc.gov/reading-rm/doc-collections/news/2022/22-002.pdf>

operators and security officers, particularly in remote locations. Micronuclear reactors are inherently unsafe, especially without human oversight.

Current micronuclear reactor designs require the use of nuclear fuels that are enriched up to 20% U-235 (high assay, low enriched uranium or HALEU). HALEU presents proliferation and safety risks. With its higher levels of enrichment, the use of HALEU in microreactors increase the threat of theft or diversion into weapons production “because less work is needed to make it into weapons-grade uranium.”⁸ Furthermore, these “novel” fuels present additional challenges for waste treatment and disposal that are similar or even greater than those of current commercial reactors. It is premature to even consider the siting of micronuclear reactors given that “microreactors are currently at the earliest stage of their development. Before the deployment of a nuclear reactor, several years of planning and close coordination among reactor designers and regulators are required.” Alaska can transition to safe, renewable, economical carbon-free energy sources that are abundantly available in Alaska and do not present the inherent risks of nuclear energy.

Furthermore, the prospect of testing micronuclear reactors in Alaska raises serious environmental justice concerns, echoing the dark history of nuclear testing in Alaska, including Amchitka, Project Chariot in Point Hope, and the failed experimental nuclear reactor at Fort Greely. Our communities and workers are still left with the multigenerational legacy of massive radioactive contamination from the “experimental” SM1A nuclear reactor at Fort Greely that was a colossal failure. There are currently no micronuclear reactors in operation; if Alaska deploys them, Alaskans will be the lab rats for the nuclear industry. Residents of the Inupiat community of Point Hope are still searching for answers to questions around the federal government’s secret plan to detonate nuclear bombs there in the 1950s and 60s.⁹ As stated in the comments by the Aleutian and Pribilof Islands Association: “The Amchitka Island nuclear tests that were conducted have left a permanent and ever-growing threat to our traditional foods, our primary fisheries economy. And our sense of food safety, undermining our cultural traditions and our ability to confidently pass on our cultural practices to our children and grandchildren. We know how hollow the reassurances are that were given at the time of the Amchitka tests... This environmental injustice imposed on our region must never be repeated.” Opening the door to nuclear power again in Alaska is unwise and dangerous. If ADEC allows the deployment of novel nuclear energy in rural Alaska, it will again be putting primarily Alaska Native communities in harm’s way.

Climate warming significantly increases instability in the environment and communities of the north. Rapid warming exacerbates the hazards of transportation of nuclear and radioactive material (such as increasing amplitude of storms), siting (including melting permafrost, frequency and severity of wildfires, flooding, and storm surges), operation, and

⁸ U.S. Government Accountability Office (GAO), February 2020, GAO-20-380SP. Nuclear Microreactors. <https://www.gao.gov/products/gao-20-380sp>

⁹ <https://www.adn.com/rural-alaska/article/are-nuclear-bombs-buried-near-point-hope-alaska-some-believe-so/2014/03/03/>.

decommissioning. The Arctic is warming nearly four times faster than the planet as a whole,¹⁰ resulting in rapidly melting permafrost, loss of sea and land ice, and increases in extreme weather. This rapid change is necessitating the relocation of communities that are unstable due to increasing erosion, storm surges, and permafrost thaw. The ADEC is not equipped and lacks capacity to make informed decisions about these complex issues that must be factored before micronuclear reactor siting decisions. Moreover, state and federal agencies do not have the ability or capacity to remediate or provide restitution in the event of radioactive leakage or other catastrophic event.

Given the serious risks inherent in nuclear energy and the environmental justice implications of testing new nuclear technology in Alaska, ADEC should not permit micronuclear reactors in Alaska. If ADEC does move forward with its plans for regulations, they must include robust public process around siting, including public notice, public hearings, and other meaningful opportunities for input.

In addition to providing for meaningful engagement from the general public, ADEC must obtain free, prior, and informed consent from affected Tribes. Free, prior, and informed consent is a specific right that pertains to Indigenous peoples and is recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). It requires that Indigenous peoples give consent to a project that may affect them or their traditional lands and waters. This includes the transportation of hazardous and radioactive materials across the lands and waters of Indigenous peoples by air, land, and/or water. Free, prior, and informed consent requires that affected Tribes must be informed of potential plans as early as possible, provided with detailed information about plans and their potential impacts, and be given the opportunity for meaningful input. Free, prior, and informed consent also means that Tribes have the power to reject projects that are not in their best interest. The State of Alaska's recognition of Tribes must include upholding the right to free, prior, and informed consent, as well as rights to self-determination and a commitment to environmental justice.

A recent report concluded that renewable energy technologies, including wind, solar, geothermal, ocean and river hydrokinetic, along with complementary energy storage technologies, "are poised to affordably replace legacy fossil fuel energy systems in the 2030-2050 time horizon while providing greater energy security, increased energy resiliency especially in rural Alaska, and broad environmental, economic and health benefits."¹¹ Nuclear power is unwise and simply not necessary.

Thank you for your consideration.

¹⁰ Rantanen, M., Karpechko, A.Y., Lipponen, A. *et al.* 2022. The Arctic has warmed nearly four times faster than the globe since 1979. *Commun Earth Environ* **3**, 168. <https://doi.org/10.1038/s43247-022-00498-3>

¹¹ Brown, K. and C. Weir. 2022. Alaska's Renewable Energy Future: New Jobs, Affordable Energy. https://www.pacificenvironment.org/wp-content/uploads/2022/03/AKRenewableEnergyFuture_FullReport.pdf

Respectfully,

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