

Statement by Kevin Kamps, radioactive waste specialist, Beyond Nuclear, at SLOMFP media conference re: Diablo Canyon, June 15, 2022

Electricity is the fleeting byproduct from atomic reactors. The actual product is forever deadly radioactive waste, a curse on all future generations. The risks include to our health, safety, security, environment, and pocketbooks.

The D.C. Circuit Court of Appeals has recognized highly radioactive waste has “the capacity to outlast human civilization as we know it and the potential to devastate public health and the environment.”

The Government Accountability Office has described it as “one of the most hazardous substances on earth.”

It would be wise to stop making it, at Diablo Canyon’s twin reactors, by 2025 at the latest.

Irradiated nuclear fuel removed from Diablo’s cores contains a myriad of hazardous radioactive isotopes, each with different half-lives and hazardous persistence. These include radioactive substances such as Cesium-137, with a 30-year half-life and 300-year hazardous persistence. There are long-hazardous fission products, such as Iodine-129, with a 15.7 million-year half-life, and 157 million years of hazard. And there are actinides, such as Plutonium-239, with a 24,000-year half-life, and 240,000 years of hazard.

The most immediate and severe hazard is direct exposure to an irradiated assembly at a nearby distance in the absence of radiation shielding. A recently discharged irradiated assembly would give off more than 10,000 Rems per hour, or 100 Sieverts per hour, in the form of external penetrating radiation. A person standing within three feet of this assembly would receive a lethal dose within minutes. For the next century, it would give off life-threatening doses at this distance. Long-term health damage from lower doses includes cancers, other diseases, and lasting genetic damage, such as congenital abnormalities and chromosomal disorders, which could impact multiple generations. Radioactive hazards, if wastes escape their containment, will remain a threat, downwind of storage, downstream of disposal, up the food chain, and down the generations, for a million years.

According to a 2016 analysis performed by Robert Alvarez of Institute for Policy Studies, from 1986 to 2015, Diablo generated more than 1,300 metric tons of irradiated fuel, contained nearly 3,000 assemblies, holding almost 775,000 rods. These rods contained nearly 500 million curies (1.83×10^{19} becquerels) of intermediate and long-lived radioactive elements. Diablo's two indoor wet storage pools contained about five times the amount of irradiated fuel than in the operating reactor cores. There were 34 dry casks at Diablo, which held about half of the site's irradiated fuel. The structural integrity of these Holtec casks has long been challenged by industry and NRC whistleblowers, due to widespread quality assurance violations.

A decade ago, nearly two-thirds of the irradiated fuel at Diablo was high burnup. More than half was stored in the pools, while about one-fourth was stored with lower burnup fuel in dry casks. Diablo could use much higher burnup if operations continue past 2025. Higher burnup fuel is thermally hotter and significantly more radioactive, exacerbating handling, storage, transport, and disposal risks.

Of course, operations since 2016 have increased the amount of highly radioactive waste stored at Diablo, by about 40 metric tons per year. Extended operations past 2025 would compound these mounting problems. This boils down to a monstrous level of risk, as from earthquakes, extreme weather, accidents, or attack, at Diablo's pools and/or dry casks, for decades to come.

Regarding irradiated fuel Management & Operations (M&O) costs, PG&E estimated a decade ago, if both reactors closed for good by 2025 at the end of their initial 40-year licenses, there would be \$477.5 million of M&O costs related to irradiated fuel. PG&E assumed the Department of Energy would begin accepting irradiated fuel for disposal beginning in 2024, and that all would be removed between 2033 and 2055. This assumption was incorrect. And per the Nuclear Waste Policy Act, DOE cannot accept title for irradiated fuel until a permanent geologic disposal repository is operating.

If granted a 20-year operating license extension by the Nuclear Regulatory Commission, PG&E estimates Diablo would generate more than 2,000 additional

irradiated assemblies from 2025 to 2045. This would require nearly 70 more dry casks. The additional capital and loading expense would be about \$173 million.

But DOE has reported the first geologic repository could not open before 2048. Shipments for disposal would not start till nine years later, and would conclude by 2090. The total capital and M&O costs at Diablo would be about \$190 million more than if irradiated fuel generation had ended in 2025.

And NRC has reported that a repository might not open till 2084. Complete removal of irradiated fuel would take until 2117. This would mean an additional 62 years of M&O costs, including more than \$350 million in added costs due to irradiated fuel generated after 2025.

Of course, the public is forced to pay such added costs, whether in the form of damage awards coming from the U.S. Treasury's taxpayer-funded Judgement Fund, for DOE partial breach of contract regarding waste removal, or as ratepayer surcharges for nuclear-generated electricity, as with the Nuclear Waste Fund.

Then there is the Hail Mary pass of consolidated interim storage. But the CIS facilities targeted at West Texas by Interim Storage Partners, and at New Mexico by Holtec, violate the Nuclear Waste Policy Act. Beyond Nuclear is challenging this at the Court of Appeals for the D.C. Circuit. Natural Resources Defense Council recently submitted a compelling Friend of the Court brief supporting our arguments.

But both CISFs also violate the Atomic Energy Act on safety and security, as well as the National Environmental Policy Act on process and substance. Mother's for Peace is, thankfully, a party to the Don't Waste Michigan et al. coalition challenging both CISFs. We hope that, as with *San Luis Obispo Mothers versus NRC* 15 years ago, which required NRC to address security risks at Diablo's dry cask storage, the federal court will uphold the law in our appeals against these CISFs.

As shown by the City of Fort Worth, Texas's Friend of the Court brief in support of Don't Waste Michigan's arguments, the country is waking up to "Mobile

Chernobyl” transport risks, including proposed barge shipments from Diablo to Oxnard.

Calling DOE’s bluff on “consent-based siting,” the States of Texas and New Mexico have also filed lawsuits against these environmentally unjust CISFs.

Hardened On-Site or Near-Site Storage is the least-worst interim alternative. Thank you.