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Submitter Information

Name: JOHN LAFORGE

Address:

740A ROUND LAKE ROAD
LUCK, WI, 54853

Email: nukewatch1@lakeland.ws

Organization: NUKEWATCH

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General Comment

CORRECTED COMMENT IS ATTACHED

COMMENT SUBMITTED TUESDAY NOVEMBER 17 WAS IN ERROR

Attachments

Comments to NRC on DSEIS for Yucca Mt

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NOV. 17, 2015

PUBLIC COMMENTS, RE YUCCA MOUNTAIN NUCLEAR WASTE REPOSITORY DRAFT SUPPLEMENTAL EIS ON PROJECTED "PERFORMANCE" OF YUCCA MOUNTAIN

NUREG 2184; SUBMITTED TO DOCKET # NRC-2015-0051

These comments are being offered on behalf of the 2,400 members of NUKEWATCH, a nuclear watchdog and environmental group based in Wisconsin. Nukewatch, 740A Round Lake Rd., Luck, WI 54853; 715-472-4185.

TO THE NUCLEAR REGULATORY COMMISSION:

The Nuclear Waste Policy Act sets strict standards that must be met before a high-level radioactive waste dumpsite can be licensed. The Yucca Mountain site in Nevada, 90 miles from Las Vegas—the only place being considered for permanent burial of the waste—occupies land reserved in treaty law by the Western Shoshone Nation which is opposed to the dump.

Yucca Mt. would not prevent the waste's radiation from leaking, and the water table under the mountain is only 700 feet below the proposed dump. The mountain's geology does not meet the original statutory requirements established for disposal of high-level waste, so, instead of being cancelled, specifications have repeatedly been weakened.¹

Environmental Protection Agency standards now in place hope to limit the site's release of radiation to levels that will cause no more than 1,000 cancer deaths over 10,000 years. Increased cancer incidence has not been estimated. Whether or not the EPA's technically callous requirements can be met is a matter of heated scientific debate and ongoing litigation.

Allison Macfarlane, former chairwoman of the Nuclear Regulatory Commission (NRC), warned in November 2014 that at the time work was stopped, "there were more than 300 contentions challenging the application." Each of the hurdles must be argued before a panel of administrative law judges.² The \$90 billion Yucca Mt. project³ was cancelled in 2010 because it is ill-conceived, ill-managed and can no longer be defended on scientific grounds.⁴

In a 1998 study, the Department of Energy (DOE) itself acknowledged that the site is fractured and leaky, plagued by earthquakes and that its untested waste containers have limited viability. Mary Olson of Nuclear Information and Resource Service Southeast has said, "Yucca Mountain is a sieve."⁵

The DOE's proposed waste transport routes would take the deadly fuel—from 72 US nuclear reactor sites—through at least 40 states, 40 Indian reservations, 600 counties and 100 major cities. About 138 million North Americans would be exposed to the risk of dangerous levels of radiation and to the truck and train crashes that are statistically inevitable. Dept. of Transportation and NRC regulations allow these

¹ "Rules changed for Nevada nuclear waste site plan," *Washington Post*, Dec. 12, 2001; "Groups File Reply Brief in Case Against EPA's Yucca Mt. Standards: Seek Stronger Radiation Protection Rule," *Public Citizen*, Sept. 4, 2002; "Radioactive Waste Site: A Shift In Strategy," *New York Times*, July 31, 2001; and AP, May 5, 2001.

² Matt Wald, "Nuclear Agency Rules are Ill-Suited for Plant Decommissioning, Leader Says," *New York Times*, Nov. 17, 2014.

³ "Price Tag for Nuclear Waste Dump," *New York Times*, July 16, 2008.

⁴ Arjun Makhijani, "The Needless Yucca Mt. Rush of 1998," *Science for Democratic Action*, Institute for Energy & Environmental Research, May 1997, p.1.

⁵ Nuclear Information and Resource Service SE, Report on DOE "Viability Assessment" for Yucca Mt. repository, Dec. 18, 1998.

containers at their surface to emit 100 millirems per hour—equal to the allowable public dose for an entire year. Tied-up in traffic three feet away, people in vehicles would get the equivalent of one chest X-ray every hour.⁶

In January 2008, Clark County, Nevada planner and former state transportation analyst Fred Dilger caused a state-wide uproar when he said that if the waste trains go through Las Vegas, "All of the casinos on the west side of Las Vegas Boulevard would be bathed in gamma radiation."⁷

The Yucca Mt. plan does not begin to address the vast nuclear waste problem, but merely transfers the risk of radiation accidents and leaks to Nevada residents and to millions of people along proposed waste transport routes.

An August 1999 DOE report declared that leaving the waste in storage at reactor sites is just as safe as moving it to Yucca Mt., as long as the waste is repackaged every 100 years.⁸

Given the uncertainties about Yucca Mt. and the enormous risk of moving waste fuel, it makes much more sense to leave it at the power reactors while developing better alternatives. Independent scientists suggest on-site, above-ground, monitored storage, along with additional counter-measures for safety and security.

Yucca Mt. should be disqualified: A list of scientific reasons to disqualify the site follows. Any one of these major problems should have already ended the consideration of the Yucca Mountain site.

In 2007, the Bow Ridge earthquake fault was discovered by the DOE to be hundreds of feet east of where scientists had earlier estimated. The fault passes directly under a planned pad where waste canisters would cool down before they are entombed in tunnels inside the mountain. A May 21, 2007 letter from the chief of the US Geological Survey's Yucca Mt. Project Branch, to the DOE's lead laboratory, announced this "show stopper." The grave error means designers must revamp or scrap earlier plans. Yucca Mt. project officials said they were still developing repository design, construction and operating ideas for the dump. The DOE has never produced blueprints that Nevada officials can review and critique. "Everything is conception designs and cartoons," said Bob Loux, director of the Nevada Agency for Nuclear Projects.⁹

In 2002, a mild earthquake on June 14 about 12 miles southeast of Yucca Mt. fueled opposition to the dump. The magnitude-4.4 quake was called a "wake-up call" by project critics who pointed to the potential for damage to above-ground storage facilities, where thousands of tons of the waste brought to the site would be kept for decades while it cools. "If anyone ever wondered about the wisdom of locating an underground radioactive dump site on an active fault line, this shows why," US Rep. Shelley Berkley, D-Nev., said after the quake.¹⁰

In December 2001, the General Accounting Office reported that Yucca project managing contractor Bechtel SAIC, acknowledged that there were still 293 unresolved technical "agreements" to further analyze the mountain's geology and the makeup of the metal

⁶Ibid.

⁷Molly Ball, "Clinton declares Yucca 'will be off the table forever,'" *Las Vegas Review-Journal*, Jan. 17, 2008.

⁸ Matthew Wald, "Study Advances Plan for Nuclear Storage Site, but Questions Remain," *New York Times*, Aug. 7, 1999.

⁹*Las Vegas Review-Journal* and *Las Vegas Sun*, Sept. 24, 2007.

¹⁰ Nick Madigan, "Quake Hits Near Nevada Site Proposed for Nuclear Dump," *New York Times*, June 15, 2002.

casks that would hold the waste. These crucial studies would take many years, Bechtel said.¹¹

In August 1999, evidence that the inside of the mountain is periodically flooded with water came in the form of Zircon crystals found deep inside. "Crystals do not form without complete immersion in water," said Jerry Szymanski, formerly the DOE's top geologist at Yucca. Szymanski's finding that deep water rises and falls inside Yucca Mt. was disregarded by the DOE.¹² "That would mean hot under-ground water has invaded the mountain and might again in the time when radioactive waste would still be extremely dangerous. The results would be catastrophic."¹³

In March 1998, the Yucca Mt. site was found to be subject to earthquakes or lava flows every 1,000 years—10 times more frequently than earlier estimated—according to a Calif. Institute of Technology study. The finding means that radiation dispersal from the Yucca Mt. site is much more likely during the dump's 250,000-year radioactive hazard period.¹⁴

In June 1997, DOE researchers announced that rain water had seeped from the top of Yucca Mt. 800 feet into the repository in a mere 40 years (as dated by chlorine-36). Government scientists had earlier claimed that rainwater would take hundreds or thousands of years to reach the waste caverns. Federal guidelines have long required that the existence of fast-flowing water would disqualify the site.¹⁵

In March 1995, government physicists at Los Alamos National Laboratory dropped a bomb on the Yucca plan, charging that the wastes might erupt in a nuclear explosion and scatter radioactivity to the winds or into groundwater or both.¹⁶ Charles Bowman and Francesco Venneri found that staggering dangers will arise thousands of years from now—after steel waste containers dissolve and plutonium begins to disperse into surrounding rock. Former DOE geologist Jerry Szymanski said, "You're talking about an unimaginable catastrophe. Chernobyl would be small potatoes."¹⁷ So serious a dispute, coming so late in the planning process, might cripple the plan or even kill it, the *New York Times* reported.

In July 1990, the National Research Council said the DOE's Yucca Mt. plan is "bound to fail" because it demands a level of safety that science cannot guarantee.¹⁸

In 1989, 16 geologists from the US Geologic Survey bluntly charged that the DOE was using stop-work orders to prevent the discovery of problems that would doom the repository.¹⁹ The government geologists reported that "There is no facility for trial and error, for genuine research, for innovation, or for creativity."²⁰ Even the NRC complained that work at Yucca Mt. seemed designed mostly to get the repository built rather than to determine if the site is suitable.²¹

¹¹ Steve Tetreault, "GAO's final report: Opting to proceed with Yucca Mt. might be premature," *Las Vegas Review Journal*, Dec. 22, 2001; Eric Pianin, "GAO Challenges Plans for Storage of Nuclear Waste," *Washington Post*, Nov. 30, 2001; "New Suit Filed Against US About Nuclear Waste Dump," *New York Times*, Dec. 18, 2001.

¹² *New York Times*, August 7, 1999.

¹³ Matt Wald, "Radioactive Waste Site: A Shift In Strategy," *New York Times*, July 31, 2001, & August 10, 1999.

¹⁴ Peter Spotts, "New Quake Concerns at Nuclear Dump Site," *Christian Science Monitor*, March 27, 1998.

¹⁵ *New York Times*, June 20, 1997.

¹⁶ *Washington Post*, Dec. 15, 1998 & *New York Times*, Mar. 5, 1995.

¹⁷ Joby Warrick, "At Nevada Nuclear Waste Site: The Issue is One of Liquidity," *Washington Post*, Dec. 15, 1998.

¹⁸ Associated Press, "Nuclear waste dump plan is doomed, report concludes," *Milwaukee Journal*, July 19, 1990.

¹⁹ *New York Times*, January 17, 1989.

²⁰ *New York Times*, February 12, 1989.

²¹ *New York Times*, January 17, 1989.

In 1983, the National Academy of Sciences noted that the chemical characteristics of the water at Yucca Mt. are such that the wastes would dissolve more easily than at most other places.²² Plutonium-239 in the reactor waste is radioactive and deadly for essentially the rest of time. Some of the waste "remains radioactive for millions of years."²³

DOE scientists know that the steel canisters holding the waste will dissolve long before the waste's radiation hazards are gone. Because of the million-year cancer dangers of the waste, "testing of the whole project is impossible," according to Dr. R. Darryl Banks, biophysicist at World Resources Institute in Washington, because it "would require a time machine."²⁴

There are good alternatives to a Yucca Mt. dump. Storing radioactive wastes at reactor sites that generate it will allow time to give other proposals the consideration they deserve²⁵ and allow the most dangerous fission products to become less hazardous.

JOHN LAFORGE, Co-Director
Nukewatch
740A Round Lake Road
Luck, WI 54853

²² Ibid.

²³ Ibid.

²⁴ *New York Times*, August 2, 1995.

²⁵ Arjun Makhijani, "Independent Institute Recommends Alternative Nuclear Waste Plan," Institute for Energy & Environmental Research press release, June 4, 2002.