



**Comments
of the
Natural Resources Defense Council
on the
Nuclear Regulatory Commission's**

**NUREG-2184, NRC staff's draft "Supplement to the U.S. Department of
Energy's Environmental Impact Statement for a Geologic Repository for the
Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca
Mountain, Nye County, Nevada" (draft supplement)**

Docket ID NRC-2015-0051

Submitted by:

**Geoffrey H. Fettus
November 20, 2015**

On August 21, 2015, the U.S. Nuclear Regulatory Commission (NRC) requested public comment on NUREG– 2184, the NRC staff's draft "Supplement to the U.S. Department of Energy's Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada" ("Draft Supplement"). The public comment period was extended past the original deadline of October 20, 2015, (80 Fed. Reg. 56501, Sept. 18, 2015) to November 20, 2015. After our statement of interest, the Natural Resources Defense Council, Inc. (NRDC) files the following brief set of comments on the Draft Supplement.

NRDC is a national non-profit membership environmental organization with offices in Washington, D.C., New York City, San Francisco, Chicago, Los Angeles and Beijing. NRDC has a nationwide membership of over one million combined members and activists. NRDC's activities include maintaining and enhancing environmental quality and monitoring federal agency actions to ensure that federal statutes enacted to protect human health and the environment are fully and properly implemented. Since its inception in 1970, NRDC has sought to improve the environmental, health, and safety conditions at the nuclear facilities operated by DOE and the civil nuclear facilities licensed by the NRC and their predecessor agencies.

Despite the fact that NRC acknowledges in this document (Draft Supplement at 1-3) and in its Adoption Determination Report (ADR Section 3.2.1.4.2, "Impacts on Groundwater and from Surface Discharge of Groundwater") that the Department of Energy's (DOE) original Environmental Impact Statements (EISs) on Yucca Mountain did not adequately characterize potential contaminant release to groundwater and from surface discharges of groundwater, NRC still adheres to the flawed assumptions DOE used to frame the foundation of its analysis of potential environmental impacts of the repository. Indeed, NRC has limited its analysis to impacts *outside* of the irregularly drawn, oddly-shaped "controlled area." (The "controlled area" is the area in immediate proximity to the buried high-level radioactive waste that is dedicated as a natural protective barrier, and hence, could become contaminated. *NRDC v. EPA*, 824 F.2d at 1276.).

Among those assumptions NRC is relying on for this Draft Supplement are descriptions of the affected environment and impacts on this environment up to the regulatory compliance location at approximately 18-km [11-mi] distance along the natural water flow path from the repository. At the regulatory compliance location, the impacts were estimated for the reasonably maximally exposed individual (RMEI), consistent with the RMEI characteristics in 10 CFR Part 63. *See* Draft Supplement at 3-1.

These unsound DOE assumptions have been the subject of both litigation (*NEI v. EPA*, 373 F.3d at 1258) and public controversy and are now outdated and likely misleading, as these assumptions assume absence of well drilling for necessary water need between the

repository and the 18 kilometer edge of the compliance area. *See* Attachment 1 for NRDC's unchallenged visual portrayal of the "controlled area." These dated assumptions cannot excuse a current failure to analyze potentially significant impacts. As Attachment 1 demonstrates, in 2001 DOE itself has already drilled two deep water wells (because the Energy Department likely needed the water) in the controlled area, doing away with the fallacy that no one would ever drill for scarce water resources in the arid West.

Further, the assumption that an RMEI location at the 18 kilometer point is more protective of public health than one closer to the repository is mistakenly premised upon entirely unsupported assumptions about well drilling and pumping costs; assumptions that have grown even weaker since they were first made in the late 1990s. The State of Nevada has extensively addressed and refuted these assumptions in rulemaking proceedings before the Environmental Protection Agency (EPA), and we presume when NRC returns to the drawing board on a new draft of this document, the agency will reference or address that evidence, which undermines the notion that ignoring harm closer to the repository is any way protective of the environment or in compliance with NEPA.

Continued reliance on these dated assumptions allows for radioactive contaminants in what could be a 300 square-kilometer contaminated zone. That result would sanction precisely the "endangerment" that the Congress tried to proscribe in the Nuclear Waste Policy Act (NWPA). 42 U.S.C. 10101 *et seq.* The 1994 Energy Policy Act's individual protection standard applies to releases from a repository, which necessarily includes a controlled area, and NRDC has no challenge to the basic concept of a controlled area. But the dated assumptions supporting the irregularly shaped controlled area at the Yucca Mountain site both anticipates and allows for a plume of radioactive contamination that will spread several miles from the repository toward existing farming communities that depend solely on groundwater and potentially spread to future communities closer to the site.

As a final note, ignoring harm within the compliance boundary also relies on passive institutional controls to continue long into the future, a mistake NRC seems to be making repeatedly. As a reminder, institutional controls, long a part of environmental law, have a role in schemes to protect the public from the impacts of incomplete cleanups where contamination is left on site for extended periods of time. Institutional controls are shorthand descriptions for restrictions placed on land, surface water or groundwater use when it is either technically impossible or economically prohibitive to permanently remove the source of pollution or contamination. The types of restrictions can be "active" institutional controls – often colloquially described as "guns, gates and guards" – or "passive" institutional controls, which range from warning notices to keep trespassers off contaminated sites to deed restrictions specifying how the land can be used henceforth. Regardless of whether institutional controls are active or passive, the purpose is to isolate the remaining contamination or potential harm from the public in an enduring fashion.

Several agencies, including NRC, have adopted policies either implementing or relying on institutional controls. Each agency explicitly declines to rely on active institutional controls for more than 100 years and on passive controls or engineered barriers for no more than 500 years. The NRC's licensing requirements for land disposal of radioactive waste adoption state:

The land owner or custodial agency shall carry out an institutional control program to physically control access to the disposal site following transfer of control of the disposal site from the disposal site operator. The institutional control program must also include, but not be limited to, carrying out an environmental monitoring program at the disposal site, periodic surveillance, minor custodial care, and other requirements as determined by the Commission; and administration of funds to cover the costs for these activities. The period of institutional controls will be determined by the Commission, *but institutional controls may not be relied upon for more than 100 years following transfer of control of the disposal site to the owner.*

10 C.F.R. §61.59(b) (emphasis added). Indeed, the National Academy of Sciences state unequivocally: "institutional controls will fail."¹

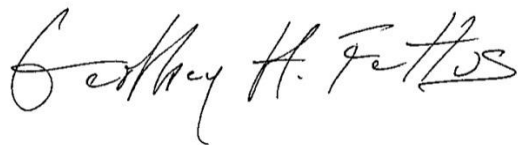
NEPA requires federal agencies examine "to the fullest extent possible" proposed major federal actions that will "significantly affect the quality of the human environment." 42 U.S.C. § 4332. Agencies must also account for the full range of the proposed action's direct, indirect, and cumulative significant environmental effects. 40 C.F.R. §1508.8, 1508.27.

Reliance on outdated and inaccurate assumptions that undergird a gerrymandered controlled area ensures that the Draft Supplement will not account for the entire set of effects of burying spent fuel or high level radioactive waste at the proposed Yucca Mountain site. In doing so NRC fails to fully disclose and analyse harms occurring in the area between the repository site and the point of compliance. Nothing in the Nuclear Waste Policy Act (NWPA) suggests allowance for such an exemption and indeed, the law requires full NEPA analysis except for several enumerated exceptions. (See NWPA, § 114, 42 U.S.C. § 10134.) Under section 114(f) of the NWPA, 42 U.S.C. § 10134(f), it is neither "practicable" nor lawful to approve environmental analysis for an EIS that fails to fully account for Yucca Mountain's environmental consequences. NRC should withdraw the Draft Supplement and update its work with meaningful analysis of the proposed environmental consequences.

¹ See National Academy of Sciences/National Research Council, Board on Radioactive Waste Management, *Committee on the Remediation of Buried and Tank Waste, Long-Term Institutional Management of the U.S. Department of Energy Legacy Waste Sites*, August 2000, at page 97 (emphasis added).

We appreciate the opportunity to comment. If you have any questions, please do not hesitate to contact us.

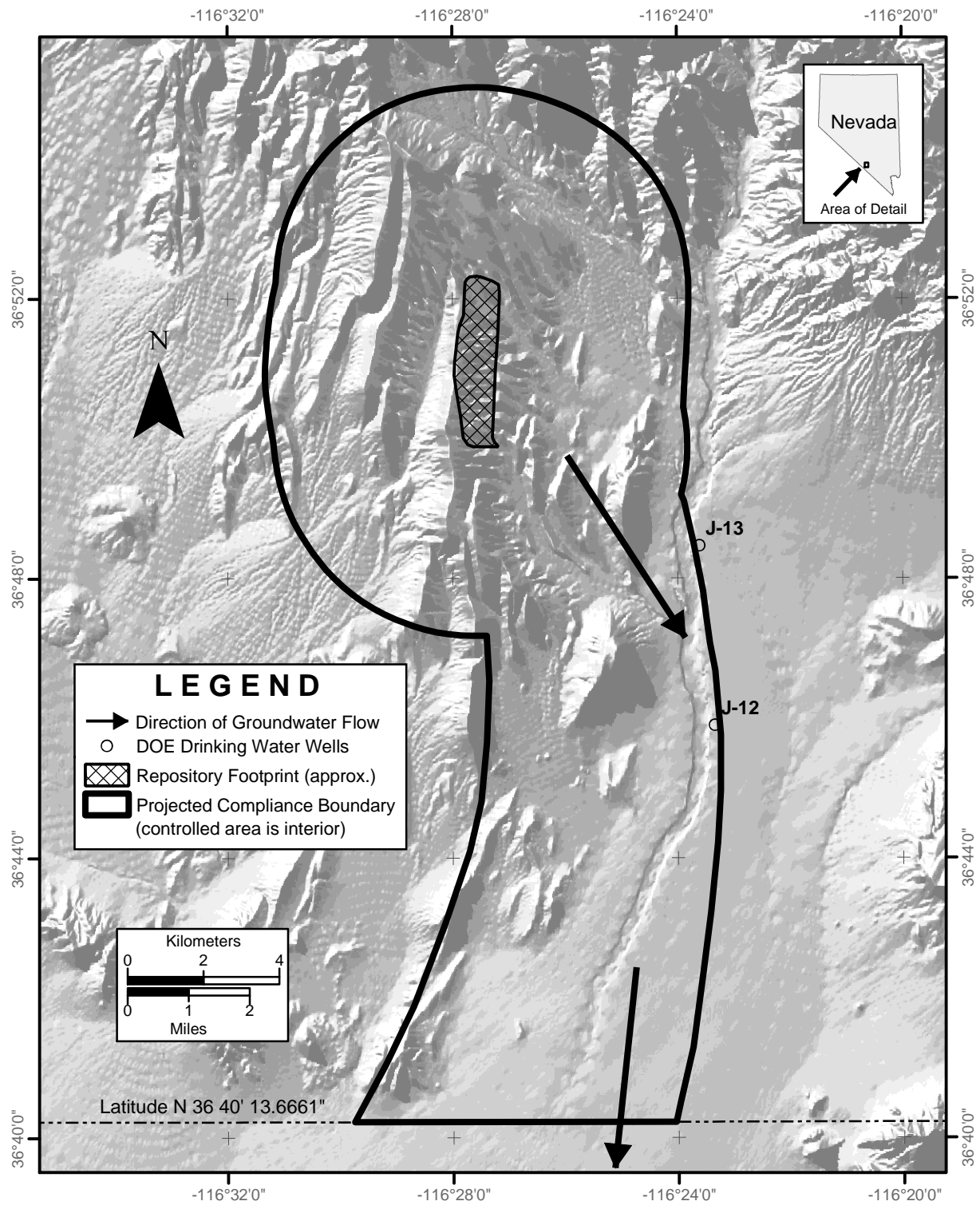
Sincerely,

A handwritten signature in black ink that reads "Geoffrey H. Fettus". The signature is written in a cursive style with a large initial 'G' and a long, sweeping tail.

Geoffrey H. Fettus
Senior Attorney
Natural Resources Defense Council
1152 15th St. NW, Suite 300
Washington D.C., 20005
(202) 289-2371
gfettus@nrdc.org

Projected Groundwater Standards Compliance Boundary for Spread of Radioactive Contamination at the Yucca Mountain Project

Measurement of Radioactive Contamination Takes Place Outside of Controlled Area



NRDC produced this visual representation from the following information:
 "The controlled area may extend no more than 5 km in any direction from the repository footprint, except in the direction of groundwater flow. In the direction of groundwater flow, the controlled area may extend no farther south than latitude 36 40' 13.6661" North ... [T]he size of the controlled area may not exceed 300 square km." 66 Fed Reg. at 32117 (June 13, 2001). The direction of groundwater flow is from FEIS (February 2002) at 5-21, Figure 5-3. The repository footprint is from the Yucca Mountain Science and Engineering Report, DOE/RW-0539, at 1-17, Figure 1-3, and the area is approximately 4.27 square km. The area within the projected compliance boundary, as shown in this map, is about 230 square km. The relief image was created from a 1 arc-second Digital Elevation Model from the USGS National Elevation Dataset, April 2002. This map is based on a Nevada State Plane Central projection, North American Datum 1927.