

WASTE CONFIDENCE CONTENTION

A. Statement of Contention

The NRC lacks a lawful basis under the Atomic Energy Act (“AEA”)¹ for issuing or renewing an operating license in this proceeding because it has not made currently valid findings of confidence or reasonable assurance that the hundreds of tons of highly radioactive spent fuel that will be generated during any reactor’s 40-year license term or 20-year license renewal term can be safely disposed of in a repository.² The NRC must make these predictive safety findings in every reactor licensing decision in order to fulfill its statutory obligation under the AEA to protect public health and safety from the risks posed by irradiated reactor fuel generated during the reactor’s license term.³

B. Statement of Basis for the Contention

The following explains the legal and factual bases for the contention:

The NRC historically made generic findings regarding the safety of spent fuel disposal in its 1984 Waste Confidence Decision (“WCD”), as updated in 1990 and 2010.⁴ As stated most recently in the 2010 WCD Update, the relevant findings were as follows:

Finding 1: The Commission finds reasonable assurance that safe disposal of high-level radioactive waste and spent fuel in a mined geologic repository is

¹ 42 U.S.C. § 2011, et seq.

² This contention is being filed in both initial licensing and license renewal cases. Therefore it refers to both types of license.

³ See Atomic Energy Act Section 182, 42 U.S.C. § 2232; *Union of Concerned Scientists v. NRC*, 824 F.2d 108 (D.C. Cir. 1987); and other authorities cited in Section B.1 below.

⁴ Waste Confidence Decision, 49 Fed. Reg. 34,658 (Aug. 31, 1984); Waste Confidence Decision Review, 55 Fed. Reg. 38,474 (Sept. 18, 1990); Waste Confidence Decision Update, 75 Fed. Reg. 81,037 (Dec. 23, 2010). The 2010 WCD Update was vacated by the U.S. Court of Appeals in *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012).

technically feasible.⁵

Finding 2: The Commission finds reasonable assurance that sufficient mined geologic repository capacity will be available to dispose of the commercial high-level radioactive waste and spent fuel generated in any reactor when necessary.⁶

The 2010 WCD Update, however, was vacated by the U.S. Court of Appeals in *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012), for failure to comply with the National Environmental Policy Act (“NEPA”).⁷ In the final rule recently issued by the NRC on remand from the Court’s decision, the NRC chose not to replace the vacated Waste Confidence findings.⁸

The Commission’s conclusion is incorrect. In the absence of generic Waste Confidence safety findings, the NRC can no longer claim to satisfy the AEA’s requirement to provide adequate protection of public health and safety from the significant health and safety risks posed by this reactor’s generation of spent fuel. The NRC therefore must either deny this initial or renewed license application or make the findings on a case-specific basis in this proceeding.⁹

1. The Atomic Energy Act requires the NRC to make findings regarding the safety of spent fuel disposal in its reactor licensing decisions.

Under the plain language of the AEA, the NRC’s longstanding interpretation of the AEA, and judicial precedents, the NRC is required to provide reasonable assurance that the spent fuel

⁵ 2010 WCD Update, 75 Fed. Reg. at 81,058 (capitalization of some words omitted).

⁶ *Id.*, 75 Fed. Reg. at 81,038. The 2010 WCD Update also contained three other Findings related to the safety of spent fuel storage pending disposal (as opposed to the safety of spent fuel disposal itself). Without conceding the validity of these storage-related findings, this contention does not challenge those findings.

⁷ 42 U.S.C. § 4321 et seq.

⁸ Final Rule, Continued Storage of Spent Nuclear Fuel, 79 Fed. Reg. 56,238, 56,243-44 (Sept. 19, 2014) (“Continued Storage Rule”). *See also* NUREG-2157, Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel Rule at D-9 (Sept. 2014) (“Continued Storage GEIS”).

⁹ 42 U.S.C. §§ 2133(d), 2232(a) (requiring the NRC to protect public health and safety in licensing decisions); *Minnesota*, 602 F.2d at 416 (finding that the NRC has discretion to choose between making generic and site-specific safety findings); Continued Storage GEIS at D-9 (explaining that AEA safety determinations “would be made as part of individual licensing actions”).

generated by a reactor will not pose an unreasonable risk to public health and safety *i.e.*, that its radioactivity can be safely contained as long as it exists. While the courts have upheld the NRC's discretion to forecast the safety of future repository disposal in predictive terms of "confidence" rather than the more rigorous findings it makes for operation of the reactor itself,¹⁰ there is no question that the AEA requires the NRC, before licensing a reactor, to have reasonable confidence that public health and safety will be protected from the hazards posed by spent reactor fuel.

Section 182 of the AEA, for instance, "requires the Commission to ensure that 'the utilization or production of special nuclear material will . . . provide adequate protection to the health and safety of the public.'"¹¹ The "utilization . . . of special nuclear material" (*i.e.*, uranium fuel) results in the generation of undisputedly dangerous material: highly radioactive "spent fuel" that will pose an extreme hazard to public health and safety for thousands of years if it is unprotected.¹² Congress has established a federal policy of disposing of this hazardous spent reactor fuel in a repository to be licensed by the NRC.¹³ But Congress has made no determination that safe repository disposal of spent fuel is, in fact, feasible or that there is sufficient repository capacity in the United States to accommodate all of the spent fuel that will be generated by licensed reactors.¹⁴ That function is left to the NRC. Thus, before allowing the

¹⁰ See note 26 below.

¹¹ See also *Union of Concerned Scientists*, 824 F.2d at 109 (interpreting 42 U.S.C. § 2232(a)).

¹² Spent nuclear reactor fuel "poses a dangerous, long-term health and environmental risk. It will remain dangerous 'for time spans seemingly beyond human comprehension.'" *New York*, 681 F.3d at 474 (quoting Blue Ribbon Commission on America's Nuclear Future, *Report to the Secretary of Energy* at 10-11 (2012)). See also 40 C.F.R. § 197 (2008) (EPA citing risks of radioactive material at times after 10,000 years and up to 1 million years after disposal).

¹³ See Nuclear Waste Policy Act ("NWPA") of 1982, as amended, 42 U.S.C. § 10101 et seq. (1992).

¹⁴ While Congress has directed the U.S. Environmental Protection Agency ("EPA") and the NRC to establish standards for a single repository at Yucca Mountain, it has not made any preclusive

creation of highly radioactive nuclear waste through the “utilization” of reactor fuel in a reactor, the NRC must have some basis for confidence that the spent fuel can be safely disposed of when it is necessary.

Similarly, Section 103(d) of the AEA prohibits the NRC from licensing a reactor “if, in the opinion of the Commission, the issuance of a license to such a person would be inimical to . . . the health and safety of the public.”¹⁵ Given that the issuance of a reactor license is for the very purpose of using reactor fuel to produce electricity, the NRC is both authorized and required to deny the issuance of a license if the use of reactor fuel would create a permanent and uncontainable public health hazard.¹⁶

Finally, Section 161(b) empowers the NRC to “prescribe such regulations or orders as may be necessary . . . to govern the possession and use of special nuclear materials . . . in order to protect health and to minimize danger to life or property.”¹⁷ Thus the AEA both authorizes and requires the NRC to take regulatory actions needed to protect public health and safety

determination as to whether such a repository should be licensed; nor has it made any determination that the capacity of Yucca Mountain (in metric tons) is sufficient to accommodate all of the spent fuel to be generated by U.S. licensed reactors. The NWPA states only that a repository will provide a reasonable assurance of adequate protection if it is sited, built, and operated: “The purposes of this part are – to establish a schedule for the siting, construction, and operation of repositories that will provide a reasonable assurance that the public and the environment will be adequately protected from the hazards posed by high-level radioactive waste and such spent nuclear fuel as may be disposed of in a repository.” 42 U.S.C. § 10131(b)(1).

¹⁵ 42 U.S.C. § 2133.

¹⁶ The NRC has argued that Section 103(d) applies only to the activities described in the reactor license application, *i.e.*, activities to be performed by the licensee itself rather than disposal of spent fuel by the federal government. Denial of Petition for Rulemaking, 42 Fed. Reg. at 34,391. But the plain language of Section 103(d) contains no such limitation. Instead, the NRC must refuse a license if its issuance would lead to result that is “inimical” to public health and safety. *See also Minnesota*, 602 F.2d at 419 (concurring opinion of Judge Tamm that Section 103(d) of the AEA and Section 102(2)(C) of NEPA (42 U.S.C. § 4332(C)) “mandate” the NRC’s Waste Confidence findings). Issuance of a reactor license to any person would necessarily be “inimical” to public health and safety if it led to the production of highly radioactive material from which the public could not be adequately protected.

¹⁷ 42 U.S.C. § 2201(b).

whenever the NRC becomes aware of such a need.

a. The NRC interpreted the AEA to require Waste Confidence findings for reactor licensing.

For over 35 years, between 1977 and 2014, the NRC consistently interpreted the AEA to require Waste Confidence safety findings. In 1977, the NRC asserted that it “would not continue to license reactors if it did not have reasonable confidence that the wastes can and will in due course be disposed of safely.”¹⁸ Thus, in 1984 the NRC issued Waste Confidence findings regarding the ultimate safety of spent fuel disposal, and revised them at periodic intervals.¹⁹ Before finalizing the Waste Confidence findings, the NRC issued the findings and their supporting technical analyses in draft form for public comment, as required by *Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979). As the NRC acknowledged, the Waste Confidence findings “fulfill[ed] NRC’s important responsibilities under the AEA”²⁰

With respect to the safety of spent fuel disposal, the Waste Confidence findings address both the technical feasibility of siting a repository and the sufficiency of repository capacity. For instance, the 1984 Waste Confidence findings stated:

“(1) The Commission finds reasonable assurance that safe disposal of high level radioactive waste and spent fuel in a mined geologic repository is technically feasible.

(2) The Commission finds reasonable assurance that . . . sufficient repository capacity will be available within 30 years beyond expiration of any reactor operating license to dispose of existing commercial high level radioactive waste

¹⁸ Denial of Petition for Rulemaking, 42 Fed. Reg. 34,391, 34,393 (July 5, 1977) (pet. for rev. dismissed sub nom. *Natural Resources Defense Council v. NRC*, 582 F.2d 166 (2d Cir. 1978)). See also Continued Storage Rule, 79 Fed. Reg. at 56,240.

¹⁹ 1984 WCD, 49 Fed. Reg. 34,658; 1990 WCD Revision, 55 Fed. Reg. 38,474; 2010 WCD Update, 75 Fed. Reg. 81,037.

²⁰ Brief for Respondents at 20, *New York v. NRC*, Docket No. 11-1045 etc. An excerpt of the NRC’s brief is attached to this contention.

²⁹ 1984 WCD, 49 Fed. Reg. at 34,660.

and spent fuel originating in such reactor and generated up to that time.”²¹

These findings were supported by a technical analysis of the feasibility and capacity of a repository, including geologic characteristics, waste packaging, and engineered safety barriers.²²

The NRC explained the role of this technical analysis in the WCD as follows:

“The conclusion that safe radioactive waste disposal is technically feasible is based on consideration of the basic features of repository design and the problems to be solved in developing the final design. A mined geologic repository for disposal of high-level radioactive waste, as developed during the past three decades, will be based on application of the multi-barrier approach for isolation of radionuclides. The high-level radioactive waste or spent fuel is to be contained in a sealed package and any leakage from the package is to be retarded from migrating to the biosphere by engineered barriers. These engineered barriers include backfilling and sealing of the drifts and shafts of the mined repository. We believe that the isolation capability and long-term stability of the geologic setting provide a final barrier to migration to the biosphere.”²³

In each revision to the WCD, the NRC updated the technical analysis underlying Findings 1 and 2. In the 1990 WCD Revision, for example, the NRC updated its supporting technical analysis in light of Congress’ passage of amendments to the Nuclear Waste Policy Act and the U.S. Environmental Protection Agency’s (“EPA’s”) promulgation of repository standards.²⁴ In the 2010 WCD Update, the NRC revised its technical analysis to assert, for the first time, that bedded salt – which was previously assumed to be an ideal geologic medium for spent fuel disposal – is not suitable.²⁵ The 2010 WCD Update also revised other aspects of the technical analysis, including reporting on the progress of the Yucca Mountain repository and repository development in other countries. In addition, the 2010 WCD Update discussed the

²² See, e.g., *id.* at 34,667-79; 1990 WCD Revision, 55 Fed. Reg. at 38,475-79; 2010 WCD Update, 75 Fed. Reg. at 81,059-67.

²³ 1984 WCD, 49 Fed. Reg. at 34,667.

²⁴ 1990 WCD Revision, 55 Fed. Reg. at 38,475-77, 38,477-79, respectively.

²⁵ 2010 WCD Update, 75 Fed. Reg. at 81,059.

effects of changing fuel characteristics on repository feasibility.²⁶

Thus, the Waste Confidence findings issued between 1977 and 2010 included both general safety findings and supporting technical analyses.

b. The Courts interpreted the AEA to require Waste Confidence findings for reactor licensing.

Federal courts have long upheld the AEA’s requirement for Waste Confidence safety findings. In *Natural Resources Defense Council*, the U.S. Court of Appeals for the Second Circuit concluded that:

“[T]he NRC’s long-continued regulatory practice of issuing operating licenses, with an implied finding of reasonable assurance that safe permanent disposal of [spent reactor fuel] can be available when needed, is in accord with the intent of Congress underlying the AEA and the [Energy Reorganization Act].”²⁷

While the Court also upheld the NRC’s decision to postpone more definitive findings about the safety of repository disposal of spent fuel until the time of repository licensing, this holding was conditioned on the NRC’s promise that in the meantime, it “would not continue to license reactors if it did not have reasonable assurance that the wastes can and will in due course be disposed of safely.”²⁸

In *Minnesota*, the U.S. Court of Appeals for the D.C. Circuit affirmed the NRC’s reliance for reactor licensing on duly promulgated technical findings of “‘reasonable confidence’ that solutions [regarding spent fuel disposal] would be available when needed.”²⁹ Looking back to the Second Circuit’s decision in *Natural Resources Defense Council*, the Court observed:

²⁶ *Id.* at 81,058-60.

²⁷ 582 F. 2d at 170. *See also, id.* at 174n. 13 (“Clearly, the Congress has, to date, shared [the NRC’s] confidence.”)

²⁸ *Id.*, 582 F.2d at 174 n. 13.

²⁹ *Minnesota*, 602 F.2d at 417.

“The Second Circuit found that Congress was well-informed that disposal solutions were not currently feasible, yet it permitted continued licensing of nuclear plants. We do not read that opinion, however, to hold as a matter of law that storage and disposal concerns are never relevant to the licensing of nuclear plants. Rather, as the NRC itself recognized, Congress has chosen to rely on the NRC’s (and its predecessor’s) assurances of confidence that a solution will be reached.”³⁰

Recently, in *New York*, the D.C. Circuit summed up the *Minnesota* decision as a “mandate . . . to ensure that plants are only licensed while the NRC has reasonable assurance that permanent disposal of the resulting waste will be available.”³¹ In *New York*, the D.C. Circuit also held that the WCD constitutes a licensing decision because it enables reactor licensing and because the NRC relies on its conclusions as uncontestable in any individual reactor licensing proceeding.³²

Accordingly, under the plain language of the AEA and the NRC’s longstanding regulatory practice as affirmed by multiple court decisions, predictive findings regarding the ultimate safety of spent fuel disposal constitute a prerequisite to reactor licensing under the AEA. By failing to promulgate new Waste Confidence findings after the Court of Appeals vacated the 2010 WCD Update, the NRC has eliminated a necessary element of its AEA- required safety determination for this reactor.

2. The NRC’s rationale for eliminating Waste Confidence findings ignores the separate and independent roles of the AEA and NEPA.

In the Continued Storage GEIS, the NRC asserts that it is “no longer necessary” to make Waste Confidence findings regarding the safety of spent fuel disposal, because the same technical findings are now included in the GEIS as assumptions underlying the NRC’s analysis

³⁰ *Id.*, 602 F.2d at 418-419.

³¹ *New York*, 681 F.3d at 476.

³² *Id.*, 681 F.3d at 476-77.

of continued spent fuel storage impacts.³³ In presenting this rationale, the NRC ignores the independent role in reactor licensing played by AEA findings and environmental analysis under NEPA. While the concerns of these statutes overlap, they impose distinct and independent obligations.³⁴

The difference between the statutes is significant. The AEA sets definite limits on reactor licensing: the NRC may not license a reactor if issuance of the license would be “inimical” to public health and safety.³⁵ In contrast, the purpose of NEPA is to evaluate environmental risks, not to limit them: even if environmental risks are significant, the agency may go ahead with its proposed action.³⁶ Thus, as the Court noted in *Minnesota*, the AEA is “more rigorous in certain aspects” than NEPA.³⁷

The NRC claims to recognize the distinction between AEA safety findings and NEPA analyses. For instance, the NRC cautions in the Continued Storage GEIS that: “AEA safety determinations should not be confused with environmental analysis under NEPA.”³⁸ But no AEA safety determinations regarding spent fuel disposal can be found in either the Continued Storage Rule or the GEIS. The “reasonable assurance” language that appeared in all three iterations of Findings 1 and 2 does not appear in the final rule or the GEIS. Instead, the Continued Storage Rule and the GEIS assert, without any level of assurance, that spent fuel

³³ Continued Storage GEIS at D-33 – D-34. *See also* Continued Storage Rule, 79 Fed. Reg. at 56,251.

³⁴ *Citizens for Safe Power v. NRC*, 524 F.2d 1291, 1299 (D.C. Cir. 1975); *Limerick Ecology Action v. NRC*, 869 F.2d 719, 729-31 (3rd Cir. 1989).

⁴³ 42 U.S.C. § 2133(d).

³⁶ *New York*, 589 F.3d at 476.

³⁷ *Id.*, 602 F.2d at 418 n. 8.

³⁸ Continued Storage GEIS at D-30.

disposal is “technically feasible.”³⁹

Thus, the NRC has not fulfilled its statutory responsibility to make findings of “confidence” or “reasonable assurance” that spent nuclear fuel can, in due course, be disposed of safely. In the absence of such findings, the NRC lacks a legal basis to license or re-license any reactor.

3. Technical findings regarding feasibility of spent fuel disposal and repository capacity must be supported by a NEPA analysis.

The assertions in the Continued Storage GEIS regarding technical feasibility and repository capacity are also inadequate to satisfy the AEA, NEPA, and the Court’s decision in *New York* because they themselves are not supported by an environmental impact statement (“EIS”) or environmental assessment (“EA”). As the Court held in *New York*, the WCD constitutes a licensing decision and therefore is a “major federal action requiring either a FONSI [finding of no significant impact] or an EIS.”⁴⁰ In fact, the NRC does not identify any EIS or FONSI that would support the conclusions presented in the Continued Storage Rule and the Continued Storage GEIS regarding the technical feasibility of spent fuel disposal. And, to the best of our knowledge, none exists.

- By its own terms, the Continued Storage GEIS addresses only the environmental impacts of spent fuel *storage*, not disposal.⁴¹ The NRC’s technical findings regarding feasibility and capacity of repository disposal are incorporated as assumptions, and therefore are not analyzed.⁴²

³⁹ Continued Storage GEIS at B-2; Continued Storage Rule, 79 Fed. Reg. at 56,240, 56,251.

⁴⁰ 681 F.3d at 476-77.

⁴¹ Continued Storage GEIS at xxvi.

⁴² Continued Storage GEIS at D-33-D-34; Continued Storage Rule, 79 Fed. Reg. at 56,251.

- The U.S. Department of Energy’s (“DOE’s”) EIS for the proposed Yucca Mountain repository is not sufficient to support general findings regarding the technical feasibility or capacity of repositories because it addresses only the impacts of a single repository. In addition, the Yucca Mountain EIS is unfinished.⁴³ Therefore, the environmental impacts of disposal of spent fuel at Yucca Mountain have not been established.
- Finally, the 1974 “Environmental Survey” relied on by the NRC in initial reactor licensing proceedings for the conclusion that the environmental impacts of repository disposal are insignificant⁴⁴ does not, by its own terms, constitute an EIS or an EA.⁴⁵

Thus, no EA or EIS exists that could support the NRC’s findings regarding the feasibility and capacity of repository disposal of spent fuel as required by the Court of Appeals in *New York*.

⁴³ See Continued Storage GEIS at D-28.

⁴⁴ See 10 C.F.R. § 51.75, which provides that draft EISs in construction permit, early site permit, and combined license proceedings should incorporate the values of Table S-3 regarding the environmental effects of the uranium fuel cycle. This regulation was re-published in the Final Continued Storage Rule, 79 Fed. Reg. at 56,261.

⁴⁵ See WASH-1248, “Environmental Survey of the Uranium Fuel Cycle” at iv-v (April 1974) (stating that the Environmental Survey is not “intended to be a detailed environmental statement as defined in the National Environmental Policy Act of 1969”). In addition, the Environmental Survey’s central assumption, *i.e.*, that salt deposits constitute safe geologic media for spent fuel disposal, has been repudiated by the most recent WCD Update. Compare 2010 WCD Update, 75 Fed. Reg. at 81,059, with Environmental Survey at G-6 – G-7.