NATURAL RESOURCES JOURNAL

Volume 58
Issue 2 *Summer 2018*

Summer 2017

Environmental Racism with a Faint Green Glow

Eric Jantz
New Mexico Environmental Law Center

Eric Jantz*

ENVIRONMENTAL RACISM WITH A FAINT GREEN GLOW

ABSTRACT

For the last thirty years, environmental justice, that is, the equitable distribution of environmental pollution among all members of society, has informed environmental decision-making at every level of government. While most Federal agencies responsible for environmental regulation have taken meaningful steps to address the disparate impacts of pollution on low-income communities and communities of color, the United States Nuclear Regulatory Commission has lagged behind. As a result, low-income communities and communities of color bear the disproportionate burden of nuclear pollution in the United States. This article explores the impacts of the nuclear fuel chain on environmental justice communities, and the NRC's attempts to address those impacts. It will also critique the NRC's environmental justice policy and offer an alternative to that policy which could result in more favorable outcomes for communities faced with nuclear pollution.

I. INTRODUCTION

In 1994, President Clinton issued Executive Order ("E.O.") 12898, which directed all executive branch agencies to implement policies that reflected a commitment to environmental justice.[1] At the time, E.O. 12898 represented a significant step forward for low-income communities of color seeking a more equitable distribution of environmental pollution.[2] Although independent agencies such as the U.S. Nuclear Regulatory Commission ("NRC") were not required to

* Mr. Jantz is a Staff Attorney at the New Mexico Environmental Law Center. He received his undergraduate degree from the University of New Mexico and his Juris Doctorate from Vermont Law School in 1998. Mr. Jantz represents community organizations primarily on environmental justice and energy issues.

1. Exec. Order No. 12,898, 59 Fed. Reg. 7,629 at § 1-101 (Feb. 11, 1994) (characterizing environmental justice as disproportionately high and adverse health and environmental impacts on low-income and minority populations.)

2. Rachael E. Salcido, *Reviving the Environmental Justice Agenda*, 91 CHI.-KENT L. REV. 115, 118 (2016).

comply with the Executive Order, the Chair of the Nuclear Regulatory Commission announced that the NRC would voluntarily implement E.O. 12898's provisions. [3]

Despite the NRC Chair's commitment to integrating E.O. 12898's provisions into the agency's mission, the history of implementation and development of environmental justice at the NRC demonstrates that the agency has fallen short of realizing any meaningful gains in incorporating environmental justice into its primary functions. Further, given the Trump Administration's and Congress's recent indications[4] that nuclear power will be a centerpiece of the nation's energy policy, now, more than ever, low-income and communities of color will find themselves in the atomic cross-hairs.

This article argues that the NRC had an opportunity to implement an environmental justice policy that would have provided both procedural and substantive protections, but chose instead to largely sidestep environmental justice issues by failing to use the substantive health and safety provisions of the Atomic Energy Act as a distinct basis for its environmental justice policy. Section II of this article provides background on the environmental justice movement in the United States and the nuclear fuel chain's adverse health and environmental impacts on communities of color. Section III traces how the NRC developed a policy to address environmental racism and how that policy has been applied. Section IV evaluates the NRC's environmental justice policy and discusses how it fails to meaningfully address procedural and substantive environmental racism. Finally, Section V offers an alternative to the current NRC environmental justice policy that would meaningfully address the environmental justice impacts of the nuclear fuel chain.

II. ENVIRONMENTAL JUSTICE AND THE NUCLEAR FUEL CHAIN

A. Background on Environmental Justice and E.O. 12898

Much has been written about environmental racism and its causes. A detailed exploration of environmental racism and environmental justice is beyond the scope of this article; however, an understanding of some of the fundamental concepts of environmental racism and environmental justice are essential to understand how the nuclear fuel chain disproportionately impacts poor communities of color. Environmental justice, and its converse, environmental racism, refer to a disparate environmental pollution distribution, where low-income communities and communities of color bear the pollution burdens of industrial development and waste disposal more often than affluent and White communities.[5]

---

3. Tyson R. Smith, *With Liberty and Environmental Justice for All: A Decade at the Nuclear Regulatory Commission*, 12 MO. ENVTL. L. & POL'Y REV. 191, 192 (2005) (noting that the March 31, 1994 letter to indicated that the NRC would endeavor to carry out the measures set forth in the Executive Order).

4. *See, e.g.*, Jonathan Crawford, *Trump and U.S. Nuclear Power Find Common Ground in Jobs Push*, BLOOMBERG NEWS (Feb. 7, 2017, 1:03 PM).

5. Jeffrey Smith McLeod, *Unmasking the Processes and Justifications that Lead to Environmental Racism: A Critique of Judicial Decision-Making, Political and Public Ambivalence, and the*

These patterns of inequitable pollution distribution are the result of policy and legal decisions.[6] Contemporary manifestations of environmental racism are no longer overt; that is, they are not the result of explicitly discriminatory policies.[7] Nevertheless, since the term environmental racism was first introduced in 1982,[8] ample research has established that low-income communities of color are much more likely to be exposed to environmental hazards—and the health effects that accompany them—than affluent or White communities.[9] Further, when White communities do suffer adverse environmental impacts, clean-up is quicker and penalties for polluters stiffer than in communities of color. [10]

While the causes of environmental racism are often locally idiosyncratic, there are several causes that are generally present in environmental racism cases. People of color are often subject to housing discrimination and discriminatory zoning, which leads minority neighborhoods to disproportionately host undesirable land uses such as polluting industries.[11] Private industry also consciously targets low-income communities of color for polluting operations because property is typically less expensive in those neighborhoods and their residents have less political and economic power than White communities to mount resistance.[12] Weak political opposition also makes state and local governments more likely to approve polluting projects in communities of color than in White communities.[13] Further, underrepresentation of people of color in government, the legal profession and business contributes to the disproportionate pollution burden in communities of color.[14] Finally, because communities of color lack desirable economic development opportunities, those communities are subject to "economic blackmail"—the promise of jobs, economic development and tax revenue associated with polluting projects. [15]

Disproportionate Placement of Environmental and Land Use Burdens in Communities of Color, 5 VA. J. SOC. POL'Y & L. 545, 546–47 (2008).

6. *Id*. at 547.

7. *Id*. at 549–50.

8. Civil rights leader Dr. Benjamin Chavis, Jr. coined the term in testimony before Congress. Lewis C. Browne, *Changing the Bathwater and Keeping the Baby: Exploring New Ways of Evaluating Intent in Environmental Discrimination Cases*, 50 ST. LOUIS L.J. 469, 472 n. 11 (2006).

9. McLeod, *supra* note 6, at 546–48. *See, also, e.g.*, Lara Clark, et. al., *National Patterns in Environmental Injustice and Inequality: Outdoor NO_2 Air Pollution in the United States*, PLOS ONE 9(4): e94431 (April 15, 2014), http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0094431 ; Robert J. Brulle and David N. Pellow, *Environmental Justice: Human Health and Environmental Inequalities*, 27 ANN. REV. PUBLIC HEALTH 103 (2006).

10. McLeod, *supra* note 6, at 547.

11. Adam Swartz, *Environment Justice: A Survey of the Ailments of Environmental Racism*, 2 HOWARD SCROLL SOC. J. REV. 35, 38 (1994); Alan Ramo, *Environmental Justice as an Essential Tool in Environmental Review Statutes: A New Look at Federal Policies and Civil Rights Protections and California's Recent Initiatives*, 19 HASTINGS W-N.W. J ENV. L. & POL'Y 41,49 (2013); Paul Mohai & Robin Saha, *Racial Inequality in the Distribution of Hazardous Waste: A National Level Reassessment*, 54 SOC'Y FOR THE STUDY OF SOC. PROBLEMS 343, 360 (2007).

12. Swartz, *supra* note 12, at 40.

13. *Id*.

14. *Id*. at 42–43.

15. *Id*. at 43.

Environmental racism manifests both substantively and procedurally.[16] E.O. 12898 was intended to remedy some of the procedural, and to a lesser extent, substantive, disparities in federal environmental decision-making. E.O. 12898 provides that, to substantively address environmental justice, federal agencies must ensure that the programs, policies and activities federal agencies undertake do not discriminate based on race, color or national origin.[17] This section of E.O. 12898 essentially reiterates federal agencies' obligation to comply with the 1964 Civil Rights Act.[18]

E.O. 12898's provisions to advance environmental justice through procedural means are more expansive. Federal agencies are charged with identifying and addressing the ways in which their programs, policies and activities have disproportionate environmental and health impacts on low-income communities and communities of color.[19] Federal agencies are also required to form an inter-agency working group, consisting of representatives of many executive branch agencies, who are tasked with developing and providing guidance to federal agencies on "criteria for identifying disproportionately high and adverse human health or environmental effects on minority populations and low-income populations" as well assisting in collection of data and information on environmental racism.[20] Further, each federal agency is required to develop environmental justice strategies designed to improve equitable enforcement of the laws for which each agency is responsible and increase public participation in agency decision-making.[21] Federal agencies are also directed to collect and disseminate research, information and data on disparate environmental and human health impacts of federal programs, policies and activities.[22] Finally, federal agencies are directed to enhance public participation, including the opportunity to comment on, the incorporation of environmental justice into agency programs.[23]

B. The Nuclear Fuel Chain's Disproportionate Environmental and Human Health Impacts

In order to evaluate the NRC's environmental justice policy, it is important to first understand how nuclear power impacts low-income communities and communities of color. The nuclear fuel chain consists of six stages: 1) uranium ore extraction and initial processing; 2) conversion of processed uranium to uranium hexafluoride, a chemical form suitable for further processing; 3) enriching uranium hexafluoride by increasing the concentrations of fissionable uranium isotopes; 4) fabricating enriched uranium hexafluoride into metal fuel rods; 5) burning the fuel rods at nuclear power plants to generate electricity; and 6) storage

16. Salcida, *supra* note 3, at 119–20.
17. Exec. Order No. 12,898, 59 Fed. Reg. 7,629 at § 2-2 (Feb. 11, 1994).
18. Memorandum of Understanding on Environmental Justice and Executive Order 12,898, at 1.
19. Exec. Order No. 12,898, 59 Fed. Reg. 7,629 at § 1-101 (Feb. 11, 1994).
20. *Id.* at § 1-102.
21. *Id.* at § 1-103.
22. *Id.* at § 3-3.
23. *Id.* at § 5-5.

of the used, or spent, fuel rods, either temporarily or permanently.[24] Each stage has its own unique environmental and public health impacts, by virtue of the process used and the waste generated.[25] Taking just three of the stages - uranium extraction, electricity generation in nuclear power plants, and waste disposal - this article will demonstrate that nuclear power has significant environmental justice impacts.

1. Environmental Racism in Uranium Extraction

a. Occupational Exposures

Uranium's radioactive decay products have long been associated with increased incidences of cancer, particularly lung cancer, for those who are exposed to the mineral.[26] In the 1950s, the United States Public Health Service began gathering data on uranium miners in the Southwest to measure their exposures to radiation and assess the workers' health risks.[27] These data gathering efforts resulted in the Public Health Service definitively associating exposure to uranium with increased incidence of lung cancer.[28] Researchers linked uranium to lung cancer through its decay products such as radon.[29] Radon, which is released as a gas, is inhaled, and once in the lungs emits radiation causing inflammation that can lead to cancer.[30]

Uranium extraction in the U.S. has taken place primarily on the Colorado Plateau in the States of New Mexico, Colorado, Utah, and Arizona.[31] During the uranium boom of the 1950s to 1980s, 80-90 percent of uranium extraction occurred on or adjacent to indigenous lands.[32] However, in New Mexico, Navajos were hired only after Whites were given the opportunity to fill a job, and were invariably only given the most dangerous positions such as underground miners and ore haulers.[33] Those occupations involve long periods of time underground in close proximity to the uranium ore and its decay products.[34] As a result, Navajos were more likely to be exposed to uranium decay products in the course of their work and suffer the health impacts of that exposure, particularly increased incidences of

24. U.S. Nuclear Reg. Comm'n, *Stages of the Nuclear Fuel Cycle*, https://www.nrc.gov/materials/fuel-cycle-fac/stages-fuel-cycle.html (last updated Aug. 22, 2017).

25. *Id.*

26. As early as 1879, European uranium miners noticed that respiratory problems were associated with their occupation. Carrie Arnold, *Once Upon a Mine: The Legacy of Uranium on the Navajo Nation*, 122 ENVTL. HEALTH PERSP. A45, A46–A47 (2014).

27. *Id.* at A47. It is noteworthy that the U.S. government could only get access to the miners by guaranteeing the uranium mining companies that they would not share the risks associated with mining with workers.

28. *Id*.

29. *Id.*

30. *Id.*

31. Doug Brugge & Rob Goble, *The History of Uranium Mining and the Navajo People*, 92 AM. J. OF PUB. HEALTH 1410, 1410–11 (2002).

32. DORCETA E. TAYLOR, TOXIC COMMUNITIES: ENVIRONMENTAL RACISM, INDUSTRIAL POLLUTION AND RESIDENTIAL MOBILITY 56 (N.Y.U. Press 2014).

33. *Id.* at 56–57.

34. Brugge & Goble, *supra* note 32, at 1411–13.

lung cancer. These occupational exposures were aggravated by the mining industry's unwillingness to implement occupational health protections and governments' reluctance to require them.[35]

b. Environmental Exposures

Occupational exposures to radiation from uranium are only part of the story. Many more people have been exposed to uranium and other mining waste by living in close proximity to unreclaimed or inadequately reclaimed uranium mines or mills. Recent research has linked living in close proximity to unreclaimed or inadequately reclaimed uranium mines to a broad range of diseases including hypertension, heart disease and kidney disease.[36] Further, unreclaimed and inadequately reclaimed uranium mines have been linked to widespread contamination of natural resources such as ground and surface water.[37]

Uranium extraction's health and natural resource impacts fall disproportionately on low-income communities and communities of color. As in most cases of environmental racism,[38] while uranium extraction has occurred in both minority and non-minority communities, environmental and public health mitigation measures are less likely to be implemented in minority communities and waste remediation is less likely to be adequate.

For example, uranium milling has occurred in both minority and non-minority communities across the western United States. Uranium milling involves crushing uranium ore and then soaking it in sulfuric acid to extract the usable uranium.[39] Typically, each one to four pounds of milled uranium, known as yellowcake, results in a ton of waste that is both radioactive and laced with toxic heavy metals.[40] This waste was historically dumped in unlined pits, where it leached into groundwater and ran off into surface water.[41]

Uranium was milled in the predominantly White communities of Durango, Colorado[42] and Moab, Utah[43] as well as the predominantly Navajo communities of

35. THE NAVAJO PEOPLE AND URANIUM MINING 33–35 (Doug Brugge et al. eds., 2006).

36. Molly E. Harmon et al., *Residential Proximity to Abandoned Uranium Mines and Serum Inflammatory Potential in Chronically Exposed Navajo Communities*, 27 J. EXPOSURE SCI. & ENVTL. EPIDEMIOLOGY 365, 366 (2017); Lauren Hund et al., *A Bayesian Framework for Estimating Disease Risk Due to Exposure to Uranium Mine and Mill Waste on the Navajo Nation*, 178 J. ROYAL STAT. SOC'Y SERIES A 1069, 1090 (2015).

37. *See, e.g.*, U.S. ENVTL. PROT. AGENCY, EPA 906/9-75-002, WATER QUALITY IMPACTS OF URANIUM MINING AND MILLING ACTIVITIES IN THE GRANTS MINERAL BELT, NEW MEXICO 3 (1975); U.S. ENVTL. PROT. AGENCY, FEDERAL ACTIONS TO ADDRESS IMPACTS OF URANIUM CONTAMINATION IN THE NAVAJO NATION 6 (2014).

38. *See generally*, *supra* Section II.A.

39. Arnold, *supra* note 27, at A45, A47.

40. U.S. ENERGY INFO. ADMIN., *Nuclear Explained, Where Our Uranium Comes From*, https://www.eia.gov/energyexplained/index.cfm?page=nuclear_where (last visited May 24, 2017).

41. *See, e.g.*, Paul Robinson, *Groundwater Restoration Long Beyond Closure at the Homestake-Milan and United Nuclear-Church Rock Uranium Mill Tailings Piles, New Mexico, USA: Full-Scale Programs Requiring More than 20 Years of Treatment*, SW. RES. & INFO CTR., http://www.sric.org/mining/docs/umills.php (last visited May 24, 2015).

42. U.S. DEP'T OF ENERGY, OFFICE OF LEGACY MGMT., DURANGO, COLORADO PROCESSING AND DISPOSAL SITES FACT SHEET 1 (Nov. 30, 2016).

Churchrock [44]and Shiprock, New Mexico.[45] In each case, the milling operations resulted in the U.S. Environmental Protection Agency designating the mill sites as Superfund Sites.[46] However, in the predominantly White communities, the source of radioactive and hazardous wastes, that is, the tailings piles, have been or are being removed to locations away from residents.[47] In these White communities, the mill tailings have been or are currently being moved into containment pits with barriers to prevent the contaminants from leaching into groundwater.[48]

In Churchrock and Shiprock, in contrast, the tailings piles remain near inhabited communities.[49] Further, the tailings continue to remain in unlined pits, posing a continuing threat to groundwater supplies.[50] Compared to White communities, then, the pace and adequacy of uranium milling waste contamination remediation in indigenous communities falls far behind. Disparities in hazardous waste cleanup is typical of the environmental racism that minority communities face.

c. Inequitable Distribution of Benefits.

Finally, despite bearing nearly all the environmental and public health burdens that uranium extraction causes, low-income communities of color have received virtually none of its financial benefits. During the uranium mining boom of the 1950s to 1980s, Navajo mine employees in New Mexico were frequently hired only for the most unskilled and dangerous mining jobs, regardless of what skills they actually possessed.[51] Conversely, Navajos were rarely offered supervisory or management positions.[52] Navajos were also paid less than their White counterparts for the same work.[53]

The uranium extraction industry and the United States government have also consistently denied or improperly reduced revenue from uranium extraction to tribal governments. One way revenue has been diminished or withheld is by the

43. U.S. DEP'T OF ENERGY, OFFICE OF LEGACY MGMT., FACT SHEET: OVERVIEW OF MOAB UMTRA PROJECT 1 (Jan. 2018).

44. U.S. ENVTL. PROT. AGENCY, FACT SHEET: EPA SIGNS RECORD OF DECISION FOR THE UNITED NUCLEAR CORPORATION SUPERFUND SITE 1 (March 29, 2013).

45. U.S. DEP'T OF ENERGY, OFFICE OF LEGACY MGMT., SHIPROCK DISPOSAL SITE FACT SHEET 1 (June 2017).

46. "A Superfund Site is any land in the United States that has been contaminated by hazardous waste and been identified by the Environmental Protection Agency as candidate for clean up because it poses a risk to human health or the environment." U.S. DEP'T OF HEALTH & HUM. SERV., TOXMAP FREQUENTLY ASKED QUESTIONS, https://toxmap.nlm.nih.gov/toxmap/faq/2009/08/what-are-the-superfund-site-npl-statuses.html (last visited Nov. 22, 2017).

47. U.S. DEP'T OF ENERGY, *supra* note 43, at 3; U.S. DEP'T OF ENERGY, *supra* note 44, at 1–2.

48. *Id.*

49. *See* U.S. ENVTL. PROT. AGENCY, FOURTH FIVE-YEAR REVIEW REPORT FOR UNITED NUCLEAR CORPORATION SUPERFUND SITE, CHURCH ROCK, MCKINLEY COUNTY, NEW MEXICO 9–10 (2013); U.S. DEPT OF ENERGY, LONG TERM SURVEILLANCE PLAN FOR THE SHIPROCK DISPOSAL SITE, SHIPROCK, NEW MEXICO 2–6 (Sept. 29, 1994).

50. UNITED NUCLEAR CORP., ANNUAL REVIEW REPORT - 2015: GROUNDWATER CORRECTIVE ACTION CHURCH ROCK SITE NEW MEXICO 3–8 (2016).

51. *See* Taylor, *supra* note 33, at 56–57.

52. *Id.* at 57.

53. *See id.*

failure to give tribes fair market value for minerals.[54] Under Federal Indian law, tribal resources are subject to management by the federal government.[55] The federal government manages minerals, such as uranium, on tribal lands pursuant to a patchwork of statutes.[56] A common thread throughout these statutes is that persons extracting minerals must submit fair payments, such as rents and royalties, to the U.S. government for the benefit of tribes for the privilege of extracting minerals from tribal lands.[57] However, it has been common for the federal government to shortchange tribes on payments in part or entirely.[58]

Minority communities—and indigenous communities in particular—have borne the disproportionate burden of environmental contamination and public health impacts from uranium mining and processing. True to established patterns of environmental racism, those same communities gain few benefits from uranium extraction. These communities would surely benefit from meaningful environmental justice policies in the event of a renewed push to extract uranium.

2. Environmental Racism in Nuclear Power Plant Operation

Environmental racism also occurs in the electricity generation stage of the nuclear fuel chain. Recent research has indicated that nuclear reactors are more likely to be located in ZIP codes that are predominantly poor and African-American than in affluent, White communities.[59] As a result, those communities are put at disproportionate risk in two ways. First, low-income communities of color are subject to greater risks from the nuclear power plants' day-to-day operations. These routine risks from a typical reactor include low-level radioactive emissions from normal reactor operation, which includes venting approximately 100 cubic feet per hour of radioactive gases and discharging 5,000 gallons per minute of tritium-laced coolant into nearby water sources.[60] Routine risks also include radiation exposure from cooling system leaks, plant fires, and other small-scale accidents that have become a normal part of an aging reactor fleet.[61] These routine radioactive emissions are associated with cancer, especially in children.[62]

Second, environmental racism manifests as inadequate planning for catastrophic accidents. The NRC requires a fifty mile radius Emergency Planning

54. *See, e.g.*, Navajo Tribe of Indians v. United States, 9 Cl. Ct. 227, 268 (1985).

55. *See, e.g.*, United States v. Jicarilla Apache Nation, 564 U.S. 162, 173–78 (2011). For a recent detailed discussion of the trust relationship *see* Raymond Cross, *The Federal Trust Duty in an Age of Indian Self-Determination: An Epitaph for a Dying Doctrine?*, 39 TULSA L. REV. 369 (2003).

56. *See, e.g.*, 25 U.S.C. §§ 396, 399 (2012); Indian Mineral Development Act of 1982, 25 U.S.C. §§ 2101–08 (2012).

57. *See id.*

58. *See* Navajo Tribe of Indians v. United States, 9 Cl. Ct. 227, 246, 264 (1985) (U.S. government failed to collect full amount of rent on uranium leases and failed to collect any royalties pursuant to those leases).

59. Mary Alldred & Kristin Shrader-Frechette, *Environmental Injustice in Siting Nuclear Plants*, 2 ENVTL. JUST. 85, 91–96 (2009).

60. Dean Kyne & Bob Bolin, *Emerging Environmental Justice Issues in Nuclear Power and Radioactive Contamination*, 13 INT'L J. ENVTL. RES. & PUB. HEALTH 700, 703 (2016).

61. *Id.*

62. *Id.*

Zone ("EPZ") around every nuclear power plant.[63] Each power plant is required to have evacuation and disaster mitigation plans for communities within the EPZ.[64] A recent study concluded that a larger percentage of African-Americans live within EPZs at sixty-one nuclear power plant sites than live outside the EPZs.[65] In contrast, at the same sixty-one sites, a larger percentage of Whites lived outside the EPZs than inside.[66] This unequal distribution of African-Americans within the EPZs puts those individuals at greater risk in the event of a catastrophic accident such as those at Chernobyl and Fukushima.

3. Environmental Racism in High-Level Radioactive Waste Disposal

Irrespective of whether the Trump administration or Congress is able to incorporate nuclear power as a substantial part of the country's energy mix in the future, there is presently a significant amount of high-level radioactive waste in the form of spent nuclear fuel from nuclear power plants that has no permanent storage site.[67] The problem of what to do with this spent nuclear fuel to date has only had solutions premised on environmental racism.

In the decades of planning temporary and permanent storage locations for the nation's high-level radioactive waste, indigenous communities have usually been the first to be considered as storage sites.[68] Tribal lands are often targeted as disposal sites for toxic materials because of the perception that they are "remote from heavily populated areas."[69] Additionally, because indigenous tribes are more often impoverished, they may be more willing to exchange short term financial gain for longer term health and environmental risks.[70]

Temporary, or monitored retrieval storage sites have been considered for Mescalero Apache lands in New Mexico[71] and Skull Valley Goshute lands in Utah.[72] The NRC readily dismissed environmental justice concerns raised by tribal

63. *Id.* at 704. *See also*, 10 C.F.R. § 50.47(c)(2) (2017).

64. 10 C.F.R. § 50.47.

65. Kyne & Bolin, *supra* note 61, at 704. The areas outside the EPZ were defined as the geographic area outside the 50-mile EPZ radius, but still within the state or states encompassing the 50-mile radius. *See* Dean Kyne, *Public Exposure to U.S. Commercial Nuclear Power Plants Induced Disasters*, 6 INT'L J. DISASTER RISK SCI. 238, 242 (2015).

66. Kyne & Bolin, *supra* note 61, at 704.

67. The United States Energy Information Administration identified 69,681 metric tons of spent nuclear fuel exists at nuclear utilities in the United States as of 2013. U.S. Energy Info. Admin., *Spent Nuclear Fuel* (Dec. 7, 2015), available at https://www.eia.gov/nuclear/spent_fuel/.

68. Tom B.K. Goldtooth, *Environmental Injustice in "Indian Country"*, *in* TOXIC WASTES AND RACE AT TWENTY 1987-2007: A REPORT PREPARED FOR THE UNITED CHURCH OF CHRIST JUSTICE & WITNESS MINISTRIES 95, 95–96 (United Church of Christ 2007); Solange Captan, *Driving Forces Behind Yucca Mountain as the Sole Candidate for the Housing of a High-Level Nuclear Waste Repository*, 7 NEW ENG. INT'L & COMP. L. ANN. 99, 108–109 (2001).

69. Washington Dep't of Ecology v. EPA, 752 F.2d 1465, 1469 n.3 (9th Cir. 1985).

70. Captan, *supra* note 69, at 107–108.

71. Carolyn Mitchell, *Environmental Racism: Race as a Primary Factor in the Selection of Hazardous Waste Sites*, 12 NAT'L BLACK L. J. 176, 178 (1993).

72. Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-02-20, 56 N.R.C 147 (2002).

members,[73] but ultimately, due to organized resistance, neither tribe's land became the site for temporary radioactive waste storage.

The controversy surrounding permanent high-level radioactive waste storage continues, however. The Nuclear Waste Policy Act ("NWPA"), as amended, requires that the nation's high-level nuclear waste be permanently stored in a deep geologic repository, i.e., buried underground.[74] The repository would store 70,000 metric tons of waste in perpetuity.[75] In the 1987 amendments to the NWPA, Congress eliminated all other potential permanent storage sites other than Yucca Mountain, located in Nye County, Nevada.[76] Responsibility for licensing the repository lies with the NRC.[77] Therefore the NRC has the ultimate responsibility for evaluating the repository's environmental justice consequences.

Although the only communities that are within a fifty mile radius of the proposed Yucca Mountain repository are the Western Shoshone and Timbisha Shoshone tribes, the NRC determined that the waste repository would have negligible environmental justice consequences.[78] Further, while the Obama Administration eliminated funding for licensing the Yucca Mountain repository in 2011,[79] granting the two Shoshone communities a temporary reprieve, the Trump Administration has indicated that it intends to fund licensing activities once again.[80] Yucca Mountain's environmental justice implications will again become an important issue in handling the nation's high-level radioactive waste.

III. DEVELOPMENT OF THE NUCLEAR REGULATORY COMMISSION'S ENVIRONMENTAL JUSTICE POLICY

The Nuclear Regulatory Commission first published its draft policy statement for the treatment of environmental justice matters in NRC regulatory licensing actions in 2003[81] and issued its Final Statement in 2004.[82] However, the

73. *Id.* at 151–152.

74. 42 U.S.C. § 10131 (1983).

75. U.S. Nuclear Reg. Comm'n, Backgrounder on Licensing Yucca Mountain, https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/yucca-license-review.html (last updated Sept. 03, 2015).

76. 42 U.S.C. § 10172(a) (1987).

77. *Id.* at § 10134(b).

78. U.S. NAT'L REG. COMM'N, 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, NUREG-2184 at 3-36 to 3-37 (2016); The NRC's finding of no environmental justice impact is particularly troubling in light of the well established fact that Yucca Mountain is sacred to the Western Shoshone. Jessica Barkas Threet, *Testing the Bomb: Disparate Impacts on Indigenous Peoples in the American West, the Marshall Islands, and in Kazakhstan*, 13 U. BALT. J. ENVTL. L. 29, 38 (2005).

79. WORLD NUCLEAR NEWS, *Obama Dumps Yucca Mountain* (Feb. 27, 2009), http://www.world-nuclear-news.org/newsarticle.aspx?id=24743.

80. Sarah Zhang, *The White House Revives a Controversial Plan for Nuclear Waste*, THE ATLANTIC (March 21, 2017), https://www.theatlantic.com/science/archive/2017/03/yucca-mountain-trump/519972/.

81. Draft Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions, 68 Fed. Reg. 62,642 (Nov. 5, 2003) [hereinafter NRC Draft Policy Statement].

NRC had been informally fashioning its environmental justice policy for years, in the form of regulatory guidance and adjudicatory decisions.[83] In essence, the Commission's formal policy statement was simply a ratification of its existing institutional practice.[84] Unfortunately, the ad hoc basis on which the institutional practice was founded resulted in environmental justice practices that were and continue to be little more than window dressing.

A. Pre-Policy NRC Adjudicatory Decisions

1. Louisiana Energy Services

The seminal NRC pre-policy statement adjudicatory decision regarding environmental justice is *In the Matter of Louisiana Energy Services, L.P. (Claiborne Enrichment Center)*.[85] In this case, a consortium of electric utilities called Louisiana Energy Services ("LES") applied for a license with the NRC to construct and operate a uranium enrichment facility in Claiborne Parish, Louisiana, among the communities of Center Springs and Forest Grove.[86] The populations of Forest Grove and Center Springs are approximately 97 percent African-American.[87] The area lacked basic infrastructure such as paved roads and connections to municipal water supplies.[88] According to 1990 census data, the area was home to one of the "poorest and most disadvantaged" populations in the United States, with 58 percent of African-Americans in the parish living below the poverty line.[89]

The proposed facility would have received processed uranium ore, called yellowcake, and increased the proportion of the isotope uranium-235, making the uranium suitable for use as fuel for nuclear power plants.[90] The enrichment process generates waste in the form of depleted uranium.[91] The proposed LES facility would have generated 3,800 metric tons of depleted uranium annually.[92] The

82. Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions, 69 Fed. Reg. 52,040 (Aug. 24, 2004) [hereinafter NRC Final Policy Statement].

83. *See* Louisiana Energy Servs, L.P. (Claiborne Enrichment Center), CLI 98-3, 47 N.R.C. 77 (1998); Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-02-20, 56 N.R.C. 147 (2002); U.S. NAT'L REG. COMM'N, ENVIRONMENTAL REVIEW GUIDANCE FOR LICENSING ACTIONS ASSOCIATED WITH NMSS PROGRAMS, NUREG-1748 at 5–22 (2003) (ADAMS accession no. ML032450279); U.S. NAT'L REG. COMM'N, OFFICE OF NUCLEAR REACTOR REGULATION, LIC-203, REV. 1, NRR OFFICE INSTRUCTION: PROCEDURAL GUIDANCE FOR PREPARING ENVIRONMENTAL ASSESSMENTS AND CONSIDERING ENVIRONMENTAL ISSUES (May 24, 2004) (ADAMS accession no. ML033550003).

84. NRC Final Policy Statement, 69 Fed. Reg. at 52,040, 52,047.

85. Louisiana Energy Servs., L.P., 47 N.R.C. at 77.

86. Louisiana Energy Servs., L.P., 45 N.R.C. 367, 370 (1997).

87. *Id.* at 371.

88. *Id.*

89. *Id.*

90. Arjun Makhijani and Brice Smith, *Costs and Risks of Depleted Uranium from a Proposed Enrichment Facility*, 13 SCIENCE FOR DEMOCRATIC ACTION (The Inst. For Energy and Envtl. Res., Takoma Park, M.D.), June 2005, at 2 (2005).

91. *Id.* at 3.

92. Louisiana Energy Servs., L.P., 47 N.R.C. 77, 83 (1998).

adverse health effects of depleted uranium may include genetic mutations, tumors, birth defects, cellular level toxicity and neurological damage.[93]

The LES facility was opposed by a local citizens' group, Citizens Against Nuclear Trash ("CANT"), which challenged LES' license application.[94] Among the issues CANT raised in the LES licensing proceeding was that the siting of the enrichment facility followed a national pattern of siting hazardous facilities in minority communities and neither the NRC nor LES took steps to avoid or mitigate the disparate impacts on the affected communities.[95] In support of its contention, CANT presented evidence that showed that during LES' process of narrowing down its choices for sites for the proposed enrichment facility, the level of poverty and percentage of African-Americans in the local populations near the proposed sites rose dramatically.[96] CANT presented evidence that LES' site selection process improperly included subjective quality of life assessments, for example, a prospective site was rejected because it was near a lake with "nice homes."[97] CANT also argued that LES' major site selection criterion requiring that the enrichment facility not be located near hospitals, schools or nursing homes was inherently biased because impoverished communities of color often lack these basic necessities.[98] Finally, CANT presented evidence that neither LES nor the NRC had sought community support from the closest towns of Forest Grove or Center Springs, but instead relied on support from the community of Homer, located five miles away from the proposed site.[99]

In the initial ruling on CANT's environmental justice arguments, the NRC's Atomic Safety and Licensing Board Panel ("Licensing Board"),[100] ruled that in the context of NEPA and E.O. 12898, CANT presented sufficient evidence that racial bias may have played a part in siting the LES facility.[101] The Licensing Board reasoned that E.O. 12898 requires that the NRC conduct its licensing activities in a manner that does not have the effect of subjecting any persons or populations to discrimination because of their race or color.[102] Thus, the Licensing Board concluded that, because CANT presented evidence suggesting racial bias in siting that was ineffectively rebutted or not rebutted at all, the NRC was required to

93. Makhijani and Smith, *supra* note 91, at 6–7.

94. Louisiana Energy Servs., L.P., 47 N.R.C. at 82.

95. Louisiana Energy Servs, L.P., 45 N.R.C. 367, 372 (1997).

96. *See id.* at 386 (CANT showed that the initial 78 potential sites had an aggregate average percentage of 28.35% African-American residents within one mile. After the first round of site eliminations the average of African-American residents within a mile rose to 36.78%. After the second round of site eliminations, the average of African-American residents within a mile rose to 64.74%. Finally, the proposed site in Claiborne Parish had an average of 97.1% African-American population within one mile.).

97. *Id.* at 388.

98. *Id.*

99. *Id.*

100. The Licensing Board is the first level of adjudicatory decision making at the NRC. The Licensing Board is analogous to a trial court and is responsible for making initial factual and legal determinations when an NRC action is challenged.

101. Louisiana Energy Servs., L.P., 45 N.R.C. 367, 390 (1997).

102. *Id.*

investigate further the possibility of racial bias in siting the enrichment facility.[103] Moreover, because the NRC technical staff did no independent review of the possibility of racial bias in siting the facility, but instead relied exclusively on documentation provided by LES, the NRC staff should have investigated racial bias claims further.[104]

LES appealed the Licensing Board's decision to the Commission. [105] Upon review, the Commission reversed the Licensing Board's decision.[106] In reaching its conclusion, the Commission limited the scope of the environmental justice inquiries to the NRC's NEPA process. The Commission noted that a disparate impact analysis is the NRC's principal tool for advancing environmental justice under NEPA.[107] Rather than conducting a searching analysis into whether a broad range of statutes might be relevant to an environmental justice analysis, the Commission summarily found that NEPA was the only law conceivably pertinent to an environmental justice analysis.[108] In finding that NEPA was the only law conceivably pertinent to an environmental justice analysis, the Commission relied on the Presidential Memorandum on E.O. 12898 which provides that the purpose of E.O. 12898 is to underscore certain provisions of existing law.[109] Apparently, the Commission believed that NEPA was the only law pertinent to an environmental justice analysis because it is a statute that centers on environmental impacts.[110]

With respect to the environmental justice communities that would be impacted by the enrichment facility, the Commission further narrowed the NRC's environmental justice inquiry process by holding that an inquiry into racial bias in siting decisions "go[es] well beyond what NEPA has traditionally been interpreted to require."[111] Moreover, the Commission noted that devoting substantial resources to inquiries into racial discrimination would divert funds away from the Commission's primary function under the Atomic Energy Act to protect public health and safety.[112]

2. Hydro Resources, Inc.

Despite the ongoing public health and environmental crises that have resulted from the United States' failure to reasonably regulate the uranium mining and milling industry in the past, the NRC continues to license uranium operations that it acknowledges will contaminate natural resources within the Navajo Nation.

---

103. *Id.* at 391–392.

104. *Id.* at 390–391.

105. When acting as an adjudicatory appellate body I will refer to the five NRC Commissioners as "the Commission". The Commission functions as an appellate body for appeals from the Licensing Board in adjudicatory matters. In contrast, when referring to the NRC generically as an administrative agency carrying out its routine administrative functions, I will refer to it as the "NRC".

106. Louisiana Energy Servs., L.P., 47 N.R.C. 77, 106 (1998).

107. *Id*. at 100, 102.

108. *Id.*

109. *Id.* at 102.

110. *Id*.

111. *Id.* at 102.

112. *Id.* at 103, n.20. Ironically, the Atomic Energy Act provides the very basis upon which the NRC could have fashioned a meaningful environmental justice policy. *See* Section IV, below.

In 1998, the NRC granted a source and byproduct materials license to Hydro Resources, Inc. ("HRI") to conduct uranium mining, using *in situ* leach ("ISL") technology,[113] at four sites in the Navajo communities of Churchrock and Crownpoint in northwestern New Mexico.

The license issued by the NRC allows HRI[114] to conduct ISL mining at four sites in the Navajo villages of Crownpoint and Churchrock.[115] The two sites in Churchrock— called "Section 8" and "Section 17"—would be mined first.[116] The two sites in the Crownpoint Chapter—called the "Crownpoint" and "Unit 1" sites—would be mined later.[117] The uranium slurry generated by the mining process will be processed at a central processing plant in Crownpoint.

The village of Churchrock is located in the Churchrock Chapter of the Navajo Nation in northwestern New Mexico about eleven miles east of Gallup. Like most of the areas on the Colorado Plateau, Churchrock is arid, receiving an average of 10.2 inches of precipitation a year.[118] Churchrock is rural and isolated.[119] Most of Churchrock's residents are Navajo tribal members.[120] Many of Churchrock's residents engage in subsistence agriculture and gather medicinal and culturally significant plants from the land.[121] As of 1999, the percentage of families in the Churchrock Chapter living in poverty was 42.9%.[122] Approximately 48 percent of Churchrock residents had no running water in their homes and 96 percent had no telephone service in their homes.[123]

---

113. ISL uranium mining involves injecting chemicals into an aquifer containing uranium deposits with a series of wells. The injected chemicals break the chemical bonds between the uranium deposits and the host ore, allowing uranium and associated heavy metals to move freely throughout an aquifer. The uranium slurry is drawn to the surface with another set of wells. *See*, U.S. Nuclear Reg. Comm'n, In Situ Recovery Facilities, https://www.nrc.gov/materials/uranium-recovery/extraction-methods/isl-recovery-facilities.html (last viewed, May 9, 2017); Morris, et. al. v. U.S. Nuclear Reg. Comm'n, 598 F.3d 677, 681-682 (10th Cir. 2010).

114. *Id*. HRI has since sold its uranium properties to Laramide Resources, Ltd. The NRC license has been transferred to Laramide, who must abide by all its conditions. *See* http://www.laramide.com/index.php/projects22/usa11/churchrock-and-crownpoint-properties-acquisition (last viewed May 8, 2017).

115. Morris v. NRC, 598 F3d at 681–682.

116. *Id*.

117. *Id*.

118. NUREG 1508, *Final Environmental Impact Statement to Construct and Operate the Crownpoint Uranium Solution Mining Project, Crownpoint, New Mexico* at 3-1 (Feb. 1997).

119. Petition by Eastern Navajo Diné Against Uranium Mining and Mitchell Capitan, Rita Capitan, Christine Smith, Keithlynn Smith, Kenneth Smith and Larry King on their own behalf against The United States of America at 11, Inter-Am. Comm'n H.R., (filed May 16, 2011), http://nmenvirolaw.org/images/pdf/ENDAUM_Final_Petition_with_figures.pdf, (last visited Feb. 11, 2018), [hereinafter Petition by E. Navajo Diné Against Uranium Mining] (citing n.30 "Testimony of Robert D. Bullard, attached as Exhibit 1 to Eastern Navajo Diné Against Uranium Mining's and Southwest Research and Information Center's Brief in Opposition to Hydro Resources, Inc.'s Application for a Materials License with Respect to Environmental Justice Issues . . . ").

120. *Id.* at 17 (citing the testimony of Robert D. Bullard); *see also* Churchrock, Selected Characteristics from Census 2000, available at http://churchrock.nndes.org/cms /kunde/rts/churchrock nndesorg/docs/429390660-09-28-2004-10-58-27k.pdf.

121. Petition by E. Navajo Diné Against Uranium Mining, *supra* note 120, at 11.

122. *See* Churchrock, *supra* note 121.

123. Petition by E. Navajo Diné Against Uranium Mining, *supra* note 120, at 11.

HRI's Churchrock mine sites each lie within territory traditionally used and occupied by Navajos. HRI's Section 8 licensed area is 164 acres of private land surrounded by land held in trust for the Navajo Nation and public land used by Navajo residents for grazing and agricultural purposes.[124] While Section 8 is uninhabited, it is directly adjacent to Section 17, where Navajo families reside.

HRI's Section 17 licensed area at Churchrock is located on land held in trust by the U.S. Government for the Navajo Nation. Three families live on Section 17 inside the licensed area, and approximately 850 people live within five miles of the Section 8 and Section 17 mining sites. Under the terms of the NRC license, HRI may forcibly remove individuals and families from Section 17 or restrict grazing, agriculture, and cultural activities such as plant gathering during mining operations pursuant to the license issued by the State.[125]

The inequitable distributive impacts of the proposed ISL project fall broadly into two categories: impacts on health from surface radioactive contamination and impacts on health from groundwater contamination. Health impacts and environmental justice concerns from surface radiation impacts were addressed in two NRC hearings in 1999 and 2005.

The Churchrock Chapter as a whole is heavily impacted by waste from historic uranium mining and milling. In testimony during the NRC proceedings on HRI's license, Dr. Christine Benally testified that most of the early uranium mines within the Navajo Nation remain uncontrolled and unmitigated.[126] There are thirteen sites within six miles of HRI's Churchrock sites at which uranium mining and processing was conducted. These sites include the United Nuclear Corporation ("UNC") Churchrock mill, which was an NRC licensed uranium byproduct disposal facility and is currently designated an Environmental Protection Agency ("EPA") Superfund Site. As a result, many of the 170 residences within five miles of HRI's Churchrock sites, are currently already exposed to levels of radon as much as forty-two times higher than background, as measured at the Crownpoint site. These residents are also exposed to elevated levels of gamma radiation.

HRI's licensed area on Section 17 includes parts of the abandoned Old Churchrock Mine, an underground uranium mine that operated in the early 1960s and from 1977 to 1983 before HRI purchased the land in the early 1990s. Although some of the historic mine waste has been removed, the surface of the Section 17 portion of HRI's Church Rock licensed area remains contaminated by "dust and rocks apparently lost from trucks hauling the ore from the site, or possibly from excavated rock used to build the road."[127] Near the Old Churchrock mine, HRI

124. *See* Hydro Resources, Inc. v. EPA, 608 F.3d 1131, 1136–37 (10th Cir. 2010).

125. *See* Petition by E. Navajo Diné Against Uranium Mining, *supra* note 120, at 12 ("Affidavit of Mr. Mark S. Pelizza at 19, ¶¶ 85–87, attached as Exhibit A to Hydro Resources, Inc.'s Response in Opposition to Intervenors' Written Presentation Regarding Air Emissions (July 29, 2005). Mr. Pelizza, an executive with HRI, specifically stated: 'HRI will control the Sec. 17 well fields by a fence and has full discretion where this fence will be placed . . . Mr. King would be restricted from access as any other member of the public. HRI's surface use agreement allows unlimited use of the surface for mineral production including fencing to restrict any portion of Section 17.'").

126. *Id*. at 14 n.41 ("Testimony of Christine J. Benally, Ph.D, attached as Exhibit 2 to ENDAUM's and SRIC's Brief in Opposition to Hydro Resources, Inc.'s Application for a Materials License With Respect to Environmental Justice Issues at 24 (Feb. 15, 1999)").

127. *Id*. at 12 n.37.

measured elevated radon levels that were more than ten times higher than radon levels at Crownpoint, where no mining had occurred, suggesting that elevated radiation levels are due to unreclaimed mine waste. HRI also recorded gamma radiation emissions near the Old Churchrock mine that were seventeen to twenty-nine times higher than "typical" gamma radiation levels for the area. In 2003, more than twenty years after the Old Churchrock Mine closed, consultants to the Churchrock Chapter measured high levels of gamma radiation on Section 17 in the area around the Old Churchrock Mine.[128]

Confronted with the prospect of adding to an indigenous community's existing radioactive burden, the NRC responded in two ways. In 1999, the NRC Licensing Board invoked NEPA as the basis for assessing environmental justice. In finding that the proposed project would have no disproportionate impact on low-income or minority communities, the Licensing Board effectively erased the community and their lived experience. The Licensing Board explained:

> My visit to this site permitted me to observe the vastness of the desert and raises serious questions about how this project at Church Rock Section 8 could possibly have any serious adverse impact on the people of the area. The project is industrial in nature, but it creates no serious risk of pollution. Since I have found the project at Church Rock Section 8 to be safe, there is no serious adverse impact on an environmental justice population and, unlike the LES situation, there is no basis for taking measures to mitigate or reduce that effect. Nor is there any reason to consider, in the context of a new project, the highly regrettable negative impacts of prior projects that involved uranium milling and mining.[129]

The NRC's response to the disproportionate groundwater impacts were likewise inadequate, from an environmental justice perspective. The licensed portions of Churchrock Section 8 and Section 17 are underlain by the Dakota Sandstone and Westwater Canyon aquifers, both of which provide drinking water for Navajo residents throughout the Eastern Navajo Agency. Despite significant contamination from past uranium mining and milling, substantial amounts of good quality groundwater remain in the Churchrock area. According to the Final Environmental Impact Statement ("FEIS") the NRC prepared for the proposed ISL mines, current water quality in the Dakota Sandstone and Westwater Canyon aquifers at Churchrock Sections 8 and Section 17 is "good and meets New Mexico drinking water quality standards."[130]

The NRC acknowledges that no ISL mine it has regulated has ever restored groundwater to pre-mining conditions.[131] Nevertheless, as it did with community members' concerns with radioactive surface contamination, the Licensing Board found that the EIS properly analyzed and addressed environmental

128. *Id*. at 14 n.38.

129. Hydro Resources, Inc., 50 N.R.C. 77, 123 (1999).

130. Petition by Eastern Navajo Diné Against Uranium Mining, *supra* note 120, at 13 n.39.

131. *Id*. at 27 n.93.

justice concerns with respect to groundwater impacts. The Licensing Board concluded:

> Ford (Ford May 11, 1999 Affidavit at 2-15) further persuades me of the likelihood of successful restoration and discusses the problems associated with restoration at the Church Rock site. In the interest of full disclosure, he reveals that "it is extremely likely that after ISL mining is completed, the groundwater quality will be restored to acceptable levels so that the water use of the aquifer is maintained." "[I]t is unlikely that groundwater activities at the Church Rock site will achieve baseline concentrations for all groundwater parameters . . . However, it is likely that most, if not all, of the groundwater parameters will achieve secondary groundwater restoration goals stated in HRI License Condition 10.21."

The "if not all" statement by Ford above likely is not satisfactory to the Intervenors, but I find it adequate.[132]

The Licensing Board arrived at this finding despite evidence from a nearby historic ISL demonstration project of ongoing contamination from radium, arsenic, and uranium.[133] Moreover, the Board concluded:

> In previous partial initial decisions and my discussion of groundwater, I have already determined that Intervenors' principal arguments concerning environmental effects are without merit. Accordingly, I have no basis for finding that injection mining at the Church Rock Section 8 site will have any serious impact on an environmental justice population.[134]

On appeal, the Commission upheld these Licensing Board determinations in their entirety.[135]

3. Private Fuel Storage

The Commission revisited its ever-contracting environmental justice policy in *In the Matter of Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation)*. The Private Fuel Storage ("PFS") case involved a plan by a consortium of electric utilities to store spent nuclear fuel on the Skull Valley Goshute Indian reservation.[136] The project was to result in 4,000 concrete-encased casks of high level spent nuclear fuel being stored on the reservation.[137] The reservation was already surrounded by the Dugway Proving Ground, the Deseret

132. Hydro Resources, Inc., 50 N.R.C. 77, at 103–104.

133. *See* Petition by Eastern Navajo Diné Against Uranium Mining, *supra* note 120 at 29 n.99.

134. Hydro Resources, Inc., 50 N.R.C. 77, at 123.

135. Hydro Resources, Inc., 53 N.R.C. 31 (2001).

136. Private Fuel Storage, L.L.C., 55 N.R.C. 171, 174 (2002).

137. *Id.*

Chemical Depot, the Envirocare mixed waste storage facility, a hazardous waste incinerator, and the Grassy Mountain Hazardous Waste Landfill.[138]

During the licensing proceeding, a group of Skull Valley Goshute members opposed to the Private Fuel Storage plan to store nuclear waste on their reservation alleged that the tribal chairman had misappropriated lease payments made by PFS.[139] The Licensing Board determined that since the proceeds from the PFS lease were not used to benefit all tribal members, a minority subgroup of the tribe might suffer disproportionate environmental impacts from the project, reasoning that this minority would suffer the same environmental burdens as the rest of the tribal members but receive none or fewer of the mitigating financial benefits.[140]

The Commission reversed the Licensing Board's decision.[141] Despite the Commission's recognition that "environmental harm is NEPA's 'core interest,'" it determined that while NEPA allows consideration of socioeconomic costs and benefits, that consideration is limited and the investigation of the alleged financial misdeeds of the tribal chairman went beyond NEPA's environmental scope.[142]

B. The NRC's Formal Environmental Justice Policy

During the course of the LES and PFS adjudications, the NRC was fashioning a formal environmental justice policy. The NRC's policy was unveiled to the public in 2003 by publication in the Federal Register.

1. The NRC's Draft Environmental Justice Policy

In November of 2003 the NRC published its draft environmental justice policy for public comment.[143] The NRC's Draft Policy is perhaps more notable for what is absent rather than for what it includes. Instead of presenting a proactive statement of the NRC's environmental justice policy, the Draft Policy contains a litany of issues that the NRC would refuse to consider in the context of environmental justice.

The Draft Policy begins with the statement that the E.O. 12898 does not create any new substantive requirements or rights.[144] Next, the Draft Policy asserted that NEPA, rather than the Executive Order, obligates the NRC to consider environmental justice related issues.[145] The NRC noted in the Draft Policy that NEPA is the only available statute under which the NRC could carry out the general goals of E.O. 12898.[146] In limiting its environmental justice policy to

138. Private Fuel Storage, L.L.C., 56 N.R.C. 147, 151 (2002).
139. *Id.*
140. *Id.* at 151–52.
141. *Id.* at 160.
142. *Id.* at 153–55.
143. NRC Draft Policy Statement, 68 Fed. Reg. 62,642 (Nov. 5, 2003).
144. *Id.* at 62,643.
145. *Id.* at 62,643–44.
146. *Id.* at 62,643.

NEPA, the NRC relied heavily on the LES and PFS cases.[147] Finally, the Draft Policy asserted that within NEPA's context, environmental assessments would not include environmental justice analyses, and generic and programmatic environmental impact statements would not include environmental justice analyses.[148]

At the end of the Federal Register notice, the NRC stated that the goal for an environmental justice analysis in the context of NEPA was to:

> (1) identify and assess environmental effects on low-income and minority communities by assessing impacts peculiar to those communities; and (2) identify significant impacts, if any, that will fall disproportionately on minority and low-income communities. It is not a broad ranging review of racial or economic discrimination.[149]

2. The NRC's Final Environmental Justice Policy

After receiving public comment, the NRC published its Final Environmental Justice Policy on August 24, 2004.[150] The NRC received hundreds of public comments on its Draft Policy, many of which were negative and asked that the NRC reconsider how it would implement its environmental justice policy.[151] Nonetheless, the NRC implemented the Draft Policy as its Final Policy with no substantial changes. [152]

C. How the NRC has Applied its Environmental Justice Policy

Since promulgating its Final Environmental Justice Policy, the NRC has had several opportunities to implement that policy. Based on the most salient post-policy cases, the NRC has seemed to have distanced itself even further from the policy it adopted in 2004.

1. Grand Gulf Nuclear Power Plant

In one of the earliest Commission evaluations of the NRC's environmental justice policy, the Commission reviewed a Licensing Board decision to summarily

147. *Id.* The NRC Draft Policy Statement cites several times to the LES and PFS cases as the basis for the NRC's environmental justice policy.

148. *Id.* at 62,643–44.

149. *Id.* at 62,645.

150. NRC Final Policy Statement, 69 Fed. Reg. 52,040 (Aug. 24, 2004).

151. *See, e.g.*, Comment B.3, noting that both the Environmental Appeals Board and the Board of Land Appeals had reviewed decisions for compliance with E.O. 12898 as a matter of policy under existing statutory authority and asking the NRC to provide an explanation of how and under what standards environmental justice issues are currently reviewed by the NRC under NEPA and existing statutes. 69 Fed. Reg. at 52044; Comment C.1, where the commenter noted that the Atomic Energy Act provides an adequate basis for an environmental justice review in its public health and safety requirements. *Id.*

152. *See* NRC Final Policy Statement, 69 Fed. Reg. 52,040, 52,046–48 (Aug. 24, 2004).

dismiss environmental justice challenges to an early site permit[153] for a nuclear reactor at the Grand Gulf Nuclear Station in Claiborne County, Mississippi.[154]

Here, the Commission upheld the Licensing Board's determination that impacted communities had failed to raise a litigable claim that the NRC's technical staff had failed to sufficiently consider the socioeconomic and racial make-up of the area most immediately impacted by the proposed reactor.[155]

The communities' concerns were twofold. First, the community claimed that the license applicant's Environmental Report failed to follow NRC environmental guidance because it compared the impacted community's economic and racial composition to the rest of Mississippi (which has a substantial African-American population and at the time was the second poorest state in the nation), rather than the other sites that were being considered for the reactor, as required by the guidance.[156] The Commission determined that simply disclosing the socioeconomic makeup of the affected community was sufficient to inform the public of the community's demographics and therefore satisfied the NRC's environmental justice requirements for NEPA. [157]

Second, the affected community claimed that the applicant's Environmental Report failed to address the deficiencies in emergency planning that were a result of the affected community's poverty.[158] The affected community identified several emergency planning shortcomings, including the fact that Claiborne County had only one fire station, ten police officers, and one hospital to contend with a potential radiological emergency.[159] The Commission held this contention was not litigable because the Environmental Report disclosed the socioeconomic and racial makeup of the community and the affected community had not shown that the emergency planning deficiencies would fall disproportionately on the 34 percent of Claiborne County's population that was below the poverty line compared to the 66 percent of the population that was above the poverty line.[160]

2. North Anna Nuclear Power Plant

In another case, the Commission approved an early site permit for two nuclear reactors associated with the North Anna Nuclear Power plant in Louisa County, Virginia.[161] The Commission reviewed, among other issues, a

153. Sys. Energy Res., Inc. (Early Site Permit for Grand Gulf Esp Site), 61 N.R.C. 10, 10 (Jan. 18, 2005); *see also* U. S. Nuclear Reg Comm'n, EARLY SITE PERMIT APPLICATIONS FOR NEW REACTORS (last viewed May 14, 2017). https://www.nrc.gov/reactors/new-reactors/esp.html (An early site permit allows a nuclear reactor operator to secure certain safety reviews from the NRC prior to constructing a reactor or informing the NRC of the type of reactor that will be used).

154. System Energy Resources, Inc., 61 N.R.C. 10.

155. *Id.* at 12.

156. *Id.* at 18.

157. *Id.* at 19.

158. *Id.* at 12.

159. *Id.* at 14.

160. *Id.* at 20.

161. Dominion Nuclear N. Anna, LLC (Early Site Permit for N. Anna Esp Site), 66 N.R.C. 215, 215 (2007).

determination by an NRC Licensing Board that the NRC's technical staff failed to make a sufficiently detailed analysis of the environmental justice issues associated with the planned construction of the nuclear reactors under NEPA and the NRC's environmental justice policy.[162]

The Licensing Board concluded that pursuant to the NRC's environmental justice policy and NRC environmental justice guidance, the NRC's technical staff had failed to take a more "detailed" look at the proposed reactors' impacts on the low-income and minority population the technical staff had identified as being impacted.[163] In reversing the Licensing Board's decision, the Commission initially drew attention to its view that the NRC environmental justice policy is voluntary.[164]

The Commission then distinguished between the technical staff's environmental justice analysis and its explanation of that analysis in the environmental impact statement.[165] The Commission concluded that irrespective of whether the underlying analysis was thorough or not, NRC guidance and policy does not require the technical staff to provide a comprehensive explanation of its analysis in the FEIS.[166] Thus, even while concluding that the technical staff's environmental justice discussion in the FEIS was "rather cursory," "thin," and "terse" it was nevertheless sufficient to satisfy the NRC's environmental justice policy and guidance because the technical staff ultimately concluded that the environmental justice impacts would be "small" and the record accurately reflected that conclusion. [167]

3. Indian Point Nuclear Power Plant

In a third case, in a proceeding to renew the operating license for two nuclear reactors at the Indian Point nuclear power plant, located approximately twenty-four miles north of New York City, the Commission was faced with the issue of whether the NRC technical staff could rely on the safety findings in a 1996 generic EIS for the license renewal before it.[168] As a generic document, the 1996 generic EIS did not contain site specific environmental justice considerations.[169] The impacted communities provided evidence to the Licensing Board that poverty and site-specific community characteristics like language barriers, presented

162. *Id.* at 220.

163. *Id.* at 238–239.

164. *Id.* at 240. This statement seems to imply that the NRC's environmental justice policy may be ignored or applied arbitrarily.

165. *Id.* at 241.

166. *Id.* at 242–243.

167. *Id.* at 247–248.

168. Entergy Nuclear Operations, Inc. (Indian Point, Units 2 & 3), 81 N.R.C. 340, 350–51 (2015).

169. *Id*. at 367-368. Generic and programmatic environmental impact statements have identical purposes, i.e., to evaluate the environmental consequences of wide ranging federal programs or policies that may result in common or regularly recurring impacts. *See, e.g.*, Balt. Gas & Elec. Co. v. NRDC, 462 U.S. 87, 101 (1983). In contrast, site specific environmental impact statements evaluate the environmental consequences unique to a particular federal action or project. *See, e.g.*, Commonwealth v. United States NRC, 708 F.3d 63, 68 (1st Cir. 2013).

obstacles to emergency evacuation in the event of a serious nuclear accident.[170] The Licensing Board accepted the evidence and concluded that the technical staff had failed to take a "hard look" at the environmental justice impacts in the Indian Point EIS.[171] The Commission reversed the Licensing Board, holding that concerned community members should not be able to even raise the issue of disproportionate impacts of a catastrophic accident on low-income or minority communities.[172] The Commission reasoned that the NRC technical staff properly relied upon the previous generic evaluation of the type of reactor employed at the Indian Point facility, and was not required to inquire whether there were unique or site-specific disproportionate impacts on low-income or minority communities.[173]

IV. THE NRC'S ENVIRONMENTAL JUSTICE POLICY FAILS TO MEANINGFULLY ADDRESS ENVIRONMENTAL JUSTICE

Irrespective of whether one measures the NRC's policy of limiting environmental justice analyses to environmental impact statements against the metric of providing low-income or minority communities with enhanced opportunities to influence licensing decisions or against the metric of securing particular outcomes, the policy is a failure. As discussed below, the NRC's policy fails not only on its own terms, it also represents a missed opportunity to enact significant and meaningful environmental justice reform.

A. The NRC Environmental Justice Policy Fails to Address Procedural Inequality

As noted in Section II.A, above, environmental justice has both procedural and substantive aspects. NEPA is generally recognized as a procedural statute,[174] and the NRC's reliance on NEPA as the vehicle for its environmental justice analyses limits environmental justice in the NRC framework to procedural concerns. The NRC's decision to focus on procedural inequities, in and of itself, raises concerns about its commitment to addressing environmental racism. However, even analyzed within the confines of procedural environmental justice, the NRC's environmental justice policy is inadequate.

1. The Commission's interpretation of the NRC environmental justice policy limits consideration of environmental justice impacts.

170. Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3), 81 N.R.C. at 373–74.

171. *Id.* at 375.

172. *See id.* at 380–81 (noting that "estimated doses to all populations in the event of a severe accident are expected to be within regulatory limits, that is, within generally accepted norms.").

173. *Id.*

174. Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989) ("[I]t is now well settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process. If the adverse environmental effects of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA from deciding that other values outweigh the environmental costs. (citations omitted)").

The Commission's decisions both before and after the NRC's environmental justice policy was enacted demonstrate that the Commission demands very little in the way of rigorous environmental justice analysis. As the *Grand Gulf* and *North Anna* decisions illustrate, the Commission appears to require nothing more than the mere disclosure of impacted community demographics to satisfy the NRC's obligations under NEPA.

Simply disclosing disproportionate impacts on minority communities in an EIS is insufficient to satisfy E.O. 12898 's intent. The Council on Environmental Quality,[175] in its environmental justice guidance under NEPA, identifies two important goals in considering impacts to low-income or minority communities under NEPA.[176] First, an environmental justice analysis helps identify unique impacts that might otherwise be overlooked.[177] Second, identifying such impacts will in turn heighten agency attention to alternatives, mitigation measures, monitoring programs, and community preferences for the project.[178]

The Commission's endorsement of "thin" and "terse"[179] environmental justice evaluations in an EIS cannot but undermine these goals. Perfunctory EIS disclosures limit the information available to impacted low-income and minority communities, thereby limiting their ability to meaningfully analyze and comment on the NRC's reasons for a particular project. Moreover, many environmental justice communities often lack the resources to conduct a comprehensive search of NRC records to piece together the NRC's rationale for a project, if that rationale is absent in the EIS.

Further, the Commission's reactor safety NEPA decisions indicate that it consistently substitutes analysis of the risks of catastrophic accidents occurring for the impacts of catastrophic accidents if they do occur. This analytical device further limits the environmental justice analysis. In the Indian Point nuclear power plant license renewal case, for example, the Commission upheld the technical staff's decision to rely on nineteen-year-old generic reactor safety findings as a substitute for site-specific findings.[180] The Commission reasoned that because the generic EIS for reactors found that the probability-weighted consequences of a catastrophic nuclear accident were small, the NRC technical staff could substitute those findings for a site-specific finding for the Indian Point facility.[181]

The Commission's reasoning evidences a further weakening of the procedural protections that NEPA could provide. When the NRC relies on the risks of a catastrophic nuclear accident being small to imply that the consequences of such an accident would also be small in order to avoid analyzing those

175. *See* 42 U.S.C § 4321 (1970). The Council on Environmental Quality was created by NEPA. The Council on Environmental Quality oversees NEPA implementation through issuing guidance and interpreting regulations. *See* COUNCIL ON ENVTL. QUALITY, https://www.whitehouse.gov/ceq/about (last viewed May 22, 2017).

176. COUNCIL ON ENVTL. QUALITY, ENVIRONMENTAL JUSTICE GUIDANCE UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT 10 (1997).

177. *Id.*

178. *Id.*

179. Dominion Nuclear N. Anna, LLC, 66 N.R.C. 215, 247–48 (2007).

180. *See* Entergy Nuclear Operations, Inc. (Indian Point Units 2 and 3), 81 N.R.C. 340, 379 (2015).

181. *Id.* at 380.

consequences, the result is that the consequences remain unconsidered. Unconsidered consequences are particularly dangerous for low-income and minority communities who are substantially more likely to lack the capacity to deal with catastrophic accidents compared to more affluent and White communities.

Moreover, the NRC is contradicting federal precedent by substituting an evaluation of risks for an evaluation of impacts. In *New York v. NRC*, the Federal Appeals Court for the District of Columbia Circuit held that under NEPA, under most circumstances, an analysis of risk is no substitute for an analysis of impacts.[182] Only when the risk of harm is so remote or speculative as to reduce its occurrence to zero would a finding of "no significant impact" be warranted.[183] The risk of catastrophic nuclear reactor accidents is certainly not zero[184] and most significant environmental and health impacts associated with other stages of the nuclear fuel chain unfortunately have occurred throughout the history of nuclear power development. As a mechanism for evaluating environmental justice impacts, then, the NRC's practice of substituting an analysis of risks for an evaluation of impacts is insufficient under NEPA.

2. The Commission's interpretation of the NRC's environmental justice policy appears to endorse disregarding intentional discrimination.

A significant part of the NRC's final environmental justice policy is founded on the Commission's decision in the LES case.[185] This reliance on LES, however, creates a dissonance within the NRC's environmental justice obligations.

In LES, the Commission acknowledged that its decision on environmental justice would have "profound" policy and legal implications.[186] Nevertheless, the Commission rejected the Licensing Board's determination that when the evidence in a licensing proceeding suggests a systematic discriminatory approach to siting a hazardous facility, the NRC should investigate further.[187] As noted in Section III.A.1, supra, the Commission decision is premised on the assumption that NEPA is the only statutory grounds for identifying environmental discrimination.[188]

182. New York v. Nuclear Reg. Comm'n, 681 F.3d 471, 482 (D.C. Cir. 2012).

183. *Id.*

184. *See, e.g.*, U.S. NUCLEAR REG. COMM'N, 2002 DAVIS-BESSE REACTOR PRESSURE VESSEL HEAD DEGRADATION KNOWLEDGE MANAGEMENT DIGEST, NUREG/KM-0005 1 (2014); Judith Lewis, *How We Almost Blew Up Ohio*, MOTHER JONES MAG. (April 28, 2008), http://www.motherjones.com/environment/2008/04/ how-we-almost-blew-ohio/; A.G. Sulzberger & Matthew L. Wald, *Flooding Brings Worries Over Two Nuclear Power Plants*, N.Y.TIMES (June 20, 2011), http://www.nytimes.com/2011/06/21/us/21flood.html. The reactor meltdowns at Three Mile Island, Chernobyl and Fukushima are well documented. Less well publicized are the regular near misses at reactors throughout the United States. *See also* Union of Concerned Scientists, *Near Misses at U.S. Nuclear Power Plants in 2015*, tbl. 2, 6–7 (2016) (The Union of Concerned Scientists documented ninety-one events that narrowly avoided major meltdowns at U.S. nuclear reactors between 2010 and 2015.).

185. *See* NRC Draft Policy Statement, 68 Fed. Reg. 62,642 (Nov. 5, 2003).

186. Louisiana Enrichment Servs., 47 N.R.C. 77, 100 (1998).

187. *Id*. at 101.

188. *Id*. at 102.

Nothing in NEPA or NEPA jurisprudence, the Commission concluded, required the NRC staff to investigate a claim of racial discrimination.[189]

The Commission's view seems to preclude looking for intentional discrimination in the course of the licensing process, which puts the NRC's process at odds with national civil rights laws. This view seems to indicate the NRC will willfully ignore evidence that suggests intentional environmental discrimination when raised, as it was in the LES case, by parties to a licensing proceeding.

3. The Commission's interpretation of the NRC's environmental justice policy encourages reliance on generic environmental impact statements.

The NRC's environmental justice guidance specifically exempts programmatic[190] and generic EISs from any environmental justice analysis.[191] This broad exemption puts environmental justice communities, and the public generally, in the untenable position of having to guess whether a particular health, safety or environmental issue addressed in a generic EIS will be imported wholesale to a site-specific environmental justice analysis years down the road. This scenario has already played out in NRC licensing proceedings.[192]

This reliance on generic environmental impact statements shortchanges environmental justice communities' ability to effectively participate in the NEPA process with respect to site specific environmental justice issues. Most obviously, it temporally limits environmental justice communities' ability to participate in the NEPA process. Generic EISs at best afford the public only one opportunity to identify environmental justice impacts that may occur as a result of a particular generic issue. Once that opportunity is gone, the public, and the most heavily impacted communities may never get another opportunity for input. Further, even if an environmental justice community can avail itself of the narrow window of opportunity to comment on a generic EIS, it would be forced to predict possible environmental justice consequences far in the future, including anticipating future demographic and socioeconomic shifts.

189. *Id*.

190. *See generally* Found. on Econ. Trends v. Heckler, 756 F.2d 143, 159 (D.C. Cir. 1985) (A programmatic environmental impact statement addresses the broad environmental impacts of a wide-ranging federal program. A programmatic EIS is premised on the assumption that a systematic federal program is likely to generate related environmental consequences).

191. NRC Final Policy Statement, 69 Fed. Reg. 52,040, 52,047 (Aug. 24, 2004) (The NRC's final environmental justice policy statement provides that "due to the site-specific nature of an [environmental justice] analysis, [environmental justice]-related issues are usually not considered during the preparation of a generic or programmatic EIS."). Guidance Regarding NEPA Regulations, 48 Fed. Reg. 34,263, 34,267 (July 22, 1983) (The NRC considers an environmental justice analysis at the programmatic or generic EIS level purely discretionarily, and indeed, often inappropriately. The Council on Environmental Quality, which is responsible for interpreting and implementing NEPA, defines generic and programmatic EISs as initial EISs that address broad, general programs, policies, or proposals).

192. *See* discussion *supra* Section III.C.3.

B. The NRC's Environmental Justice Policy Fails to Address Substantive Environmental Inequality

While the NRC's environmental justice policy could be significantly improved by implementing more robust NEPA analyses, even the most rigorous NEPA analysis would still be limited by NEPA's procedural nature. In other words, the best NEPA analysis would not necessarily result in concrete health outcomes in those communities most impacted by the nuclear fuel chain. For concrete outcomes, a substantive environmental justice policy is needed. However, the Commission effectively shut the door to any substantive measures addressing environmental racism in the nuclear fuel chain before it even formally adopted an environmental justice policy, when it held in the LES decision that NEPA was the "only conceivable" means by which environmental justice might be evaluated.[193] As argued below, however, the NRC's organic statute - the Atomic Energy Act - provides a basis for addressing substantive environmental inequality in a substantive way.

V. THE NRC MISSED AN OPPORTUNITY TO CREATE A MEANINGFUL ENVIRONMENTAL JUSTICE POLICY

In fashioning its environmental justice policy, the NRC had an opportunity to create a policy that would afford substantive protection to low-income and minority communities. Instead of limiting its environmental justice review to a constricted view of NEPA, the NRC could have based its policy on the public health and safety provisions of the Atomic Energy Act, which would have given greater protections to minority and low-income communities affected by NRC licensed activities.

A. Relevant Atomic Energy Act Provisions

The Atomic Energy Act ("AEA") is the implementing statute for the Nuclear Regulatory Commission. It provides for the NRC's regulatory authority, including its authority to issue licenses to possess and transport nuclear materials and construct nuclear power plants.[194] The NRC's primary mandate, pursuant to the Atomic Energy Act is to protect public health and safety.[195] Accordingly, the Atomic Energy Act contains numerous provisions prohibiting the issuance of any license by the NRC that fails to protect the public health and safety. For example, with respect to source material,[196] the AEA provides:

The Commission shall not license any person to transfer or deliver, receive possession of or title to, or import into or export from the United States any

193. *See* discussion *supra* Section III.A.1. (It is noteworthy that while E.O. 12898 itself uses NEPA as an example as a way in which the E.O. could be implemented, nothing in the E.O. indicates that NEPA should be the only means of implementation).

194. *See generally* Atomic Energy Act, 42 U.S.C. §§ 2011-296(b)-7 (2012).

195. Louisiana Enrichment Servs., L.P., 47 N.R.C. 77, 103 n.20 (1998).

196. *See* 42 U.S.C. § 2014(z) (2012); 10 C.F.R. 20.1003 ("Source material" is uranium, thorium or other material determined by the Commission to be source material or ores containing concentrations of 0.05% or greater of uranium or thorium).

source material, if in the opinion of the Commission, the issuance of a license to such person for such purpose would be inimical to the common defense and security or the *health and safety of the public*.[197]

The AEA also has public health and safety requirements with respect to byproduct material[198] and special nuclear material.[199] Finally, the AEA has public health and safety requirements for nuclear power plant operation.[200] As discussed in more detail below, the U.S. Environmental Protection Agency has already used similar broad grants of discretion in the statutes it implements and enforces to substantively consider and address environmental inequities.

B. The Atomic Energy Act Health and Safety Provisions Provide a Basis for a Meaningful Environmental Justice Policy

Although it is the NRC's view that NEPA provides the only conceivable statutory authority for its environmental justice analysis, the Atomic Energy Act's health and safety provisions could provide an additional basis for a meaningful environmental justice policy.[201] The NRC would therefore not only have the procedural remedies that NEPA affords, but would also have the discretion to fashion substantive remedies, such as license conditions, under the auspices of the Atomic Energy Act.

---

197. 42 U.S.C. § 2099 (2012) (emphasis added).

198. 42 U.S.C. § 2014(e)(2012) ("Byproduct material" is defined, in part, as "any radioactive material . . . made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material . . . [or] the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content."); *See also* 42 U.S.C. § 2111 (2012).

199. 42 U.S.C. § 2014(aa) (2012) ("Special nuclear material" is defined, in part, as artificially enriched material that is not source material, including plutonium or uranium enriched in the 233 or 235 isotope); *See also* 42 U.S.C. § 2073(e) (2012).

200. 42 U.S.C. §§ 2133(b) - (d), 2201(b) (2012). *See* New Hampshire v. Atomic Energy Comm'n, 406 F.2d 170, 175 (1st Cir. 1969); Pacific Gas & Electric Co. v. St. Energy Res. Conservation and Dev. Comm'n, 461 U.S. 190, 205 (1983).

201. The NRC does not appear to have given the idea of using the AEA's public health and safety provisions any serious thought. In response to a comment on the NRC's draft environmental justice policy suggesting that the AEA could serve as a basis for its environmental justice policy, the NRC simply noted that:

[t]he AEA does not give the Commission the authority to consider EJ-related issues in NRC licensing and regulatory proceedings. Apart from the mandate set forth in NEPA, the Commission is limited to the consideration of radiological health and safety and common defense and security. Citing New Hampshire v. Atomic Energy Commission, 406 F.2d 170, 175, 176 (1st Cir. 1969).

NRC Final Policy Statement, 69 Fed. Reg. 52,040, 52,044 (Aug. 24, 2004). However, the *Chemical Waste Management* case, discussed below, had long been decided and could have served as a model for the NRC's environmental justice policy. The NRC appeared never to have considered using the reasoning in *Chemical Waste Management* in fashioning its own environmental justice policy.

1. Similar Provisions in the Resource Conservation and Recovery Act Have Been Used by the Environmental Protection Agency as the Basis for its Environmental Justice Policy.

While the NRC apparently has not considered using the Atomic Energy Act's omnibus health and safety provisions as a basis for environmental justice analyses, using omnibus health and safety provisions is not unprecedented. The EPA has used similar broad grants of discretion to impose substantive environmental justice measures on polluting facilities subject to its regulatory authority.

The EPA's Environmental Appeals Board ("Appeals Board") has used similar omnibus language from several environmental statutes to find EPA authority to make substantive environmental justice inquiries, and three of those decisions are instructive. The Appeals Board used omnibus language in the Resource Conservation and Recovery Act ("RCRA") to uphold a substantive agency wide environmental justice policy. In *In re: Chemical Waste Management of Indiana, Inc.*, the Appeals Board acknowledged that while E.O. 12898 did not change the substantive requirements for issuance of a permit under RCRA and its implementing regulations, where the EPA has discretion to act within the constraints of RCRA and its regulations, the EPA should exercise that discretion to the greatest extent practicable to implement the Executive Order.[202]

In particular, the Appeals Board noted that under RCRA's omnibus clause, which provides that "[e]ach permit issued under this section shall contain such terms and conditions as the Administrator (or the State) determines necessary to protect human health and the environment," the EPA is required to craft permit conditions that would eliminate health and environmental risks, and if no such permit conditions could be crafted, then the permit must be denied.[203] The Appeals Board concluded that when a comment on a draft permit raises at least a superficially plausible claim that a project would disproportionately impact a minority or low-income community, the EPA is required to include in its environmental impacts assessment an analysis "focusing particularly on the minority or low-income community whose health or environment is alleged to be threatened by the facility."[204] If such an analysis found that the project would truly cause harm to human health or the environment, the EPA is required to fashion permit conditions to protect health and the environment or if no conditions can be fashioned, deny the permit.[205]

Later Appeals Board decisions reinforce the decision in *Chemical Waste*. In *In re Envotech, L.P.*, the Appeals Board construed the omnibus health and safety provisions of the Safe Drinking Water Act to allow EPA to conduct an analysis of whether low-income or minority communities would be disproportionately impacted by construction of hazardous waste injection wells.[206] In reaching its conclusion, the Appeals Board stated:

202. 6 E.A.D. 66, 72 (1995).

203. *Id.* at 74 (citing 42 U.S.C. § 6925(c)(3)).

204. *Id.* at 75.

205. *Id.* at 74.

206. 6 E.A.D. 260, 281–82 (1996).

> [W]e hold that when a commenter submits at least a superficially plausible claim that a proposed underground injection well will disproportionately impact the drinking water of a minority or low-income segment of the community in which the well is located, the Region should, as a matter of policy, exercise its discretion under 40 C.F.R. § 144.52(a)(9) to include within its assessment of the proposed well an analysis focusing particularly on the minority or low-income community whose drinking water is alleged to be threatened. In this way, the Region may implement the Executive Order within the constraints of the SDWA and the UIC regulations. [207]

In another case, the Appeals Board remanded two permits granted under the Clean Air Act for an oil exploration project off the coast of Alaska.[208] The Appeals Board based its remand, in part, on the EPA's failure to conduct an adequate environmental justice analysis when Native Alaskan groups had raised evidence of health disparities between the community of Inupiat Eskimos most impacted by the oil exploration project and the rest of the U.S. population.[209] The Appeals Board decision was also premised on an acknowledgement that environmental justice must be considered in connection with issuing Prevention of Significant Deterioration permits under the Clean Air Act.[210]

Using these broad statutory grants of discretion to implement a broader environmental justice policy is uncontroversial. The Environmental Law Institute ("ELI")[211] published a report in 2001 analyzing sources of statutory authority that could serve as the bases for EPA environmental justice activities.[212] In that report, ELI reviewed all the major environmental statutes EPA is charged with implementing and enforcing, and concluded: "[a]ll of EPA's sources of authority – environmental statutes, mission-expanding and cross-cutting laws, and general discretion – give the agency substantial and wide-ranging powers to pursue environmental justice."[213] The power to consider environmental racism and fashion remedies to address it is generally contained in the broad statutory authority to protect human health or to take necessary and appropriate action to carry out an environmental statute's goals.[214] Such remedies include denying operating permits or fashioning permit conditions based on environmental justice concerns.[215] The

207. *Id*. at 282.

208. Shell Gulf of Mexico, Inc. & Shell Offshore, Inc., 15 E.A.D. 103, 105 (2010).

209. *Id*. at 150.

210. *Id*. at 149.

211. The ELI is a non-profit, non-partisan organization dedicated to policy analysis, public education and information dissemination on environmental issues. *See About the Environmental Law Institute*, ENVTL. LAW INST., https://www.eli.org/about-environmental-law-institute (last visited May 23, 2017).

212. ENVTL. LAW INST., OPPORTUNITIES FOR ADVANCING ENVIRONMENTAL JUSTICE: AN ANALYSIS OF U.S. EPA STATUTORY AUTHORITIES (2001).

213. *Id.* at 3.

214. *Id.* at 14.

215. *Id.* at 17–18.

National Academy for Public Administration[216] reached a similar conclusion after reviewing EPA's air, water and waste programs.[217]

The omnibus language in RCRA, the SDWA, the CAA and other environmental statutes is substantially similar to the health and safety provisions in the AEA. Hence, the NRC could have implemented an environmental justice policy similar to the EPA's. Such a policy would have gone much further to protect low-income and minority populations affected by NRC licensed projects than the current NRC environmental justice policy.

2. The Atomic Energy Act Health and Safety Provisions Provide a Substantive Basis for the NRC's Environmental Justice Policy.

Like the environmental statutes that EPA administers, the AEA health and safety provisions provide a basis for a substantive NRC environmental justice policy. Nothing in the Atomic Energy Act would prevent the NRC from exercising its discretion under the omnibus health and safety provisions of the AEA to conduct substantive environmental justice analyses. Nor does anything in the AEA represent an obstacle that would prevent the Commission from adopting the environmental justice analytical framework which the EPA Appeals Board has applied to the statutes the EPA administers.

Moreover, a substantive environmental justice policy grounded in the Atomic Energy Act would benefit the communities most impacted by the nuclear fuel chain. For example, because every person or entity seeking to possess nuclear materials or operate a nuclear facility must first obtain a license,[218] environmental justice could be considered in every instance, not just those instances where an environmental impact statement would be required under NEPA. Therefore, by basing an environmental justice policy on the AEA, in addition to more robust NEPA analyses, the gaps left by relying on NEPA as the sole basis for an environmental justice analysis are filled.

Further, in contrast to NEPA's framework, under the Atomic Energy Act, the NRC would have less room to discount the adverse consequences of a licensing action. If a proposed licensing activity was found to adversely affect the health or safety of an environmental justice population, the NRC would be required, under the AEA, to either impose license conditions that eliminated the adverse health and safety consequences or deny the license application. In contrast, under NEPA, even if the NRC finds that a licensed activity disproportionately impacts a low-income or minority community, it can choose to ignore those impacts if it determines that other considerations, including economic considerations, outweigh the disproportionate impacts.[219]

---

216. The National Academy of Public Administration is a Congressionally chartered non-profit, non-partisan organization charged with providing analysis and advice on matters of public administration. *See Who We Are*, NATIONAL ACADEMY. OF PUB. ADMIN., http://www.napawash.org/about-us/who-we-are.html (last visited May 23, 2017).

217. NATIONAL ACADEMY. OF PUB. ADMIN., ENVIRONMENTAL JUSTICE IN EPA PERMITTING: REDUCING POLLUTION IN HIGH-RISK COMMUNITIES IS INTEGRAL TO THE AGENCY'S MISSION at 38 (2001).

218. 10 C.F.R. § 40.3 (1990).

219. Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989).

Finally, an environmental justice policy under the AEA would impose no new duties on the NRC, nor would it confer any new rights or causes of action. Under the AEA, the NRC is already required to analyze the health and safety aspects of a proposed project. An environmental justice policy grounded in the AEA would simply require the NRC to assess whether an environmental justice population would be disproportionately affected by the project and if so, if there are any special factors that might make the proposed project particularly risky to the health and safety of that community. For example, Native American and Hispanic populations tend to have higher incidences of diabetes than Caucasian populations, which make them more susceptible to the kidney damage that is caused by ingesting even low concentrations of uranium over time.[220] Under an AEA-based substantive environmental justice policy, projects resulting in elevated levels of uranium, a potent nephrotoxin, that could be ingested by populations that might face greater health risks from uranium ingestion, such as Native Americans and Hispanics, would be less likely to be ignored by the NRC.

VI. CONCLUSION

The U.S. Nuclear Regulatory Commission is charged with protecting all Americans from the health risks of nuclear materials. However, the NRC has repeatedly passed up opportunities to fulfill its regulatory role with legal decisions and policy initiatives that relegate environmental justice decisions to mere paper disclosures. With current efforts in Congress and the Trump Administration to promote and expand nuclear power, the NRC has been given another opportunity to revisit its environmental justice policy and fashion a policy that truly protects low-income and minority populations. Such a re-examination could lead to the NRC fully realizing its mandate to protect public health for all Americans and provide a framework for avoiding environmental inequities if the push to increase nuclear power is successful. The NRC should not again fail to take an available opportunity to create a meaningful environmental justice policy.

220. *See* Barbara Malczewska-Toth et. al., *Community Engaged Cumulative Risk Assessment of Exposure to Inorganic Well Water Contaminants, Crow Reservation, Montana*, 15 INT'L J. ENVTL. RES. & PUBLIC HEALTH 76 (2018).