

Commitments to Enhance How the NRC Addresses Environmental Justice

This enclosure describes five commitments the staff has identified for enhancing how the U.S. Nuclear Regulatory Commission (NRC) addresses environmental justice (EJ) in various programs and activities. These commitments are related to dose and radiation protection, emergency preparedness (EP), socioeconomic impacts from cessation of nuclear facility operations, and guidance documents, including cost-benefit analysis guidance and other environmental guidance. For each commitment discussed in this enclosure, the staff provides background information, a summary of what it learned, and a description of the commitment. The staff also identified commitments related to the agency's adjudicatory activities that it plans to undertake and are described in Enclosure 6. Resource information related to these commitments is described in Enclosure 13.

1. *Commitments to enhance how the NRC staff communicates and engages with environmental justice communities and Tribal nations on issues associated with dose and radiation protection, and to follow related interagency research.*

As part of its review of whether EJ is appropriately considered and addressed in the agency's programs, policies, and activities, the staff examined how EJ is addressed when considering potential impacts from radiation exposure.

Background

The U.S. Nuclear Regulatory Commission (NRC) has numerous requirements designed to protect people from harm that could be caused by a licensee's use of radioactive materials. For example, the NRC's regulations in Title 10 of the *Code of Federal Regulations* (10 C.F.R.) Part 20 place limits on dose for all members of the public, including EJ communities and Tribal nations. In addition, the NRC makes information related to dose available to the public. For example, the NRC's public website offers a "Backgrounder on Biological Effects of Radiation,"¹ "Frequently Asked Questions about Liquid Radioactive Releases,"² and annual radioactive effluent and environmental reports required of each nuclear power plant.³

The 10 C.F.R. Part 20 dose limits have not changed since the NRC's current radiation protection framework was established in 1991. This framework was based on the linear no-threshold (LNT) model that has been the underlying premise of much of the nation's radiation protection regulations since the late 1950s. The NRC recently reaffirmed the 10 C.F.R. Part 20 framework in denying a petition for rulemaking challenging the LNT model.⁴ Specifically, the

¹ Available at <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/bio-effects-radiation.html> (last visited January 12, 2022).

² Available at <https://www.nrc.gov/reactors/operating/ops-experience/tritium/faqs.html> (last visited January 12, 2022).

³ Available at <https://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html> (last visited January 12, 2022).

⁴ See *Linear No-Threshold Model and Standards for Protection Against Radiation*, Petition for rulemaking; denial, 86 Fed. Reg. 45,923, 45,924 (Aug. 17, 2021). The validity of the LNT model has been the subject of debate within the scientific community for decades. *Id.* In the 1991 rulemaking, the NRC discussed a number of assumptions related to use of the LNT model, and stated that these "assumptions are necessary because it is generally impossible to determine whether or not there are any increases in the incidence of disease at very low doses and low dose rates, particularly in the range of doses to members of the general public resulting from NRC-licensed activities." *Id.* at 45,925 (quoting *Standards for Protection Against Radiation*, 56 Fed. Reg. 23,360 (May 21, 1991)).

NRC concluded that that the LNT model continues to provide a sound regulatory basis for minimizing the risk of unnecessary radiation exposure to both members of the public and occupational workers.

In its denial of the petition for rulemaking challenging the LNT model, the NRC discussed how the radiation protection community conservatively assumes that any amount of radiation may pose some risk and that the risk is greater for higher radiation exposures.⁵ In addition, the NRC recognized ongoing uncertainty related to health risks from low doses of radiation, including those much smaller than doses received from naturally occurring radiation sources,⁶ and discussed several studies on the topic.⁷ Nationally, there is also ongoing interagency work in this area; for example, the National Academies of Sciences, Engineering and Medicine, is currently developing a long-term strategy for low dose radiation research in the United States, including defining health and safety issues that could be guided by an improved understanding of low dose and low dose rate radiation health effects.⁸ While the NRC continuously monitors research in this area, based on available information, the NRC has determined that the current regulations protect individuals in all population categories by limiting exposures to all individuals.⁹

What the Staff Learned

The staff heard that the NRC is not always effectively reaching or engaging EJ communities and Tribal nations on matters associated with dose and radiation protection. Commenters identified a need and opportunity for more transparency and education around dose-related information, including radiation health effects, and why dose limits are protective. Some commenters noted the NRC's dose standards provide adequate protection; others raised concerns about even low doses of radiation as part of other cumulative environmental impacts on vulnerable populations. Further, commenters noted different morbidity and mortality rates for EJ and Tribal populations (from various known and unknown causes), and a need for the NRC to explain why the current dose limits are protective of specific communities given observed health disparities. In addition, Tribal nations raised concerns related to health impacts and pollution from historical activities that involved nuclear materials.

Commitments

Issues associated with dose and radiation protection are complex and longstanding, yet the radiation protection system is protective, as has been recently confirmed by national and

The NRC further noted that there is “considerable uncertainty in the magnitude of the risk at low doses and low dose rates.” *Id.* (quoting 56 Fed. Reg. at 23,360).

⁵ See, e.g., *id.* at 45,924.

⁶ *Id.* at 45,925 (“uncertainty and lack of consensus persists in the scientific community about the health effects of low doses of radiation”).

⁷ *Id.* at 45,925-28.

⁸ Project Information, Developing a Long-Term Strategy for Low-Dose Radiation Research in the United States, available at <https://www8.nationalacademies.org/pa/projectview.aspx?key=52429> (last visited Jan. 12, 2022).

⁹ See, e.g., 86 Fed. Reg. at 45,928 (“the NRC has determined that the LNT model continues to provide a sound regulatory basis for minimizing the risk of unnecessary radiation exposure to both members of the public and occupational workers. Consequently, the NRC will retain the dose limits for occupational workers and members of the public in 10 C.F.R. Part 20 radiation protection regulations.”); *id.* at 45,933 (“The LNT model provides for a conservative, comprehensive radiation protection scheme that protects individuals in all population categories (male, female, adult, child, and infant) and exposure ranges by reducing the risk from low-dose radiation exposure.”).

international scientific standard setting bodies.¹⁰ According to the comments received, this message, however, and dose information in general are not always effectively communicated to EJ communities and Tribal nations. The NRC can act immediately within existing frameworks to improve how it communicates and engages with EJ communities and Tribal nations on these matters. Such action would improve transparency, provide accessibility, and establish trust.

Specifically, existing technical information and communication resources can be improved within existing NRC processes and procedures. For example, using plain language and appropriate graphics that explain potential radiation dose health risk and resulting effects to EJ communities and Tribal nations can be folded into routine information updates, as appropriate. In addition, while the NRC's public website presents extensive information on effluent monitoring and radiation protection at the NRC licensed facilities, the NRC staff will provide additional context or explanation on what this information means for EJ communities and Tribal nations. Better conveyance of information can reduce misunderstandings, build more cooperative working relationships, and improve understanding and trust of EJ communities and Tribal nations, thereby supporting the NRC's strategic goal to "Inspire Stakeholder Confidence in the NRC."¹¹ Similarly, the NRC staff is required by NRC regulation to use plain language in environmental impact statements (see 10 C.F.R. § 51.70(b)).

It also is important to recognize that some of these efforts would benefit from other enhanced outreach activities recommended as part of this EJ review effort. For example, working with representatives of EJ communities and Tribal nations would help NRC staff in developing more appropriate and easier to understand terminology and graphics for use in NRC communications and informational documents. Further, while improvements can be made under existing procedures, long-term confidence and trust requires a sustained commitment by the NRC and its staff to build and maintain relationships with EJ communities and Tribal nations. Actions to build and maintain relationships and trust are discussed in the recommendation to enhance outreach to EJ communities and Tribal nations in Enclosure 4.

Finally, as noted in the NRC's August 2021 petition for rulemaking denial, while current dose requirements continue to be protective of the public health and safety and are conservative, given the ongoing uncertainty related to risk estimates from exposure to low dose radiation, research in this area continues within the U.S Government interagency community. The staff acknowledges the technical challenges associated with addressing these uncertainties, especially as it pertains to EJ communities and Tribal nations. Although the NRC is not leading or directing interagency efforts investigating low dose radiation health effects, the NRC staff continues to follow the research and engage in discussions, attend meetings, review documents, and provide information and feedback when requested, and commits to continue to do so.

2. Commitment to enhance communication related to EP, response, and recovery activities.

¹⁰ *Id.* at 45,926-27.

¹¹ Strategic Plan, Fiscal Years 2022-2026, NUREG-1614, Vol. 8 (draft report for comment), at 11 (ADAMS Accession No. [ML21260A054](#)) ("To be successful, the NRC must not only excel in carrying out its mission but must do so in a manner that inspires confidence."). The final Strategic Plan, Fiscal Years 2022-2026, NUREG-1614, Vol. 8 will be published in April 2022 and will be available at <https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1614/index.html> (last visited March 16, 2022).

As part of its assessment of whether EJ is appropriately considered and addressed in the agency's programs, policies, and activities, the staff considered how EJ is addressed in the area of EP.

Background

A key component of the NRC's public health and safety mission is ensuring that adequate EP plans are in place to protect public health and safety if a radiological emergency were to occur. These EP plans ensure that licensees can provide adequate protective action recommendations to applicable offsite response organizations (OROs), such as State health or environmental protection departments, so that they can make the most-informed protective action decision to protect the public in the unlikely event of a radiological emergency. Emergency planning efforts are a shared responsibility among Federal, Tribal, State, and local agencies, and the licensees. While the NRC takes the lead for onsite emergency planning with its licensees, the Department of Homeland Security's Federal Emergency Management Agency (FEMA) is responsible for evaluating ORO emergency response plans, making findings and determinations that ORO emergency plans are adequate and capable of being implemented, and providing these findings and determinations to the NRC so that the NRC can consider them in its reasonable assurance finding.

The coordination between the NRC and FEMA is governed by a Memorandum of Understanding (MOU),¹² which includes a FEMA/NRC Steering Committee and is explained further in guidance that is issued jointly by the NRC and FEMA¹³ and by FEMA's Response Manual.¹⁴ Although the current jointly issued FEMA and NRC guidance document does not discuss the consideration of EJ, the MOU was developed in consideration of the whole community, including Tribal governments, and aligns with national preparedness doctrine as directed by the President in directives and supported by the National Preparedness System (NPS). The concept of ensuring that the "whole community"¹⁵ is protected is a cornerstone of the NRC and FEMA's regulatory focus and is currently being reviewed as part of FEMA's Strategic Plan along with equity and EJ considerations.¹⁶ The assessment of EP takes into account a "whole community approach" that is designed to ensure that members of the public, which would include EJ communities and Tribal communities, are appropriately considered. The NRC regularly engages and coordinates efforts with FEMA by conducting, for example, routine government-to-government and public meetings about various EP topics as part of NRC licensing, oversight, and rulemaking activities.

¹² "Memorandum of Understanding Between the Department of Homeland Security/Federal Emergency Management Agency and Nuclear Regulatory Commission Regarding Radiological Emergency Response, Planning, and Preparedness," (Dec. 7, 2015) ([ML15344A371](#)).

¹³ NUREG-0654/FEMA-REP-1, Revision 2, "Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness," (Dec. 2019) ([ML19347D139](#)).

¹⁴ FEMA Program Manual, Radiological Emergency Preparedness, dated December 2019, available at <https://www.fema.gov/media-collection/rep-program-manual> (last visited on Jan. 21, 2022).

¹⁵ See "2022-2026 FEMA Strategic Plan: Building the FEMA our Nation Needs and Deserves," stating "A Whole Community approach attempts to engage the full capacity of the private and nonprofit sectors—including businesses, faith-based and disability organizations, and the American public—in conjunction with the participation of state, local, tribal, territorial, and federal governmental partners," available at <https://www.fema.gov/about/strategic-plan> <https://www.fema.gov/about/strategic-plan> (last visited on Jan. 21, 2022).

¹⁶ *Id.* at 13-14, 16 (noting that "equity and environmental justice considerations must be cornerstones of how the nation builds resilience").

As described in the NRC/FEMA MOU, the NRC staff reviews FEMA findings and determinations in conjunction with NRC on-site findings as part of the oversight process to evaluate the state of EP. Consistent with the NRC/FEMA MOU, if the NRC staff receives information that raises questions about the continued adequacy of off-site EP, the NRC staff will refer that information to FEMA.

Recently, the NRC has been considering the issue of EP as it relates to small modular reactors. The staff notes that EP is an integral part of defense-in-depth, and the NRC is currently considering emergency planning for small modular reactors as described in the proposed rule, “Emergency Preparedness for Small Modular Reactors and Other New Technologies,” (85 Fed. Reg. 28,436, dated May 12, 2020), which was issued for public comment. This proposed rule includes regulatory requirements for offsite plans when necessary to ensure adequate protection of public health and safety.

What the Staff Learned

The staff received comments on EP planning efforts in general and emergency alert notification processes in particular. Generally, commenters requested that the Commission address EP in its EJ Policy Statement. More specifically, commenters noted that EJ communities do not feel as if unique attributes of their communities that could create disparate impacts relative to the implementation of EP program changes are always understood or factored into EP considerations. For example, some stakeholders raised concerns regarding changes in notification system requirements that rely upon cellular or internet service as a primary means of emergency communications when such services are sometimes lacking in EJ communities. Additionally, staff received comments that the NRC has not routinely engaged EJ communities on changes to EP practices that may impact EJ. Commenters also expressed a need and opportunity for more transparency and education about the different roles and responsibilities of the NRC and FEMA relative to the EP program and where stakeholders should direct concerns they may have regarding EP issues. Commenters noted that this lack of clarity in roles may contribute to the perception of the lack of EJ community engagement and participation when changes are being implemented. Finally, commenters questioned the ongoing discussions regarding the potential for a different approach to EP plans for the licensing of small modular reactors, noting that, in those cases, this could create a disproportionate impact on low-income communities surrounding these sites.

Due to the overlapping and complex nature of EP interactions, it is not always clear to stakeholders how the various roles and responsibilities of the different Federal, Tribal, State, and local agencies, and licensees are involved in EP efforts. While EP plans are developed and implemented to take into account the “whole community,”¹⁷ consideration of potential impacts on EJ communities are not always transparently communicated, which in turn can lead to lack of trust and confidence in the NRC.

Commitment

The staff carefully considered the comments received, engaged NRC subject matter experts, and reviewed NRC regulations and guidance documents. Based upon these efforts, the staff determined that, generally, the “whole community” is considered in licensee EP plans and in

¹⁷ See generally FEMA 2022-2026 Strategic Plan.

State/local/Tribal ORO EP plans; however, there may be opportunities to enhance the communication of EP, response, and recovery actions.

In the longer-term, the NRC staff commits to continuing to engage with FEMA on the topic of "whole community" preparedness during routinely scheduled meetings between NRC and FEMA. As noted above, ensuring that the "whole community" is protected is a cornerstone of NRC and FEMA's regulatory focus, and is currently being reviewed as part of FEMA's Strategic Plan along with equity and EJ considerations.¹⁸ Conforming changes beneficial to EJ communities may need to be made to the NRC/FEMA MOU and associated guidance documents if EJ-related changes are made to FEMA's Strategic Plan. In accordance with the NRC-FEMA MOU, NRC and FEMA staff may collaborate on the review of licensee, or ORO, EP plans as well as any comments that may be received about these EP plans, as appropriate.¹⁹ These interactions will help ensure that the concerns of EJ communities are considered.

In the near-term, the NRC staff will leverage opportunities to enhance, within its existing regulatory framework, how the NRC communicates EP information to further improve transparency, accessibility, and trust. During public meetings conducted to support licensing and oversight activities, the NRC staff will evaluate ways to enhance the presentation of information it shares to improve communication of updates and changes in EP approaches. Examples of these public meetings include those associated with the siting application review process, annual end-of-cycle meetings, and biennial EP exercise meetings. The NRC staff also will evaluate and improve, where appropriate, the information it shares with the public regarding EP on the NRC's website, particularly on how the NRC and FEMA work together to meet our respective regulatory authorities, and how the plans ensure the "whole community" is protected.

Sharing current and relevant information can reduce misunderstandings, build more cooperative working relationships, improve public understanding of EP, and also increase community trust in the EP approach. As additional information becomes available through these continued engagements, the NRC staff will be sensitive to any enhancement opportunities that may arise that support the development and consideration of additional guidance related to "whole community" protection.

Due to the routine and continuous nature of NRC and FEMA interactions in this area, the NRC staff's commitments in this regard can be accomplished within existing NRC processes and procedures.

3. *Commitment to enhance communications and information through existing processes related to impacts on environmental justice communities from cessation of operations at nuclear facilities.*

As part of its review of whether EJ is appropriately considered and addressed in the agency's programs, policies, and activities, the staff considered how the agency addresses EJ when licensees terminate operations, and in particular, how EJ communities may be impacted by the shutdown of a nuclear facility.

Background

¹⁸ *Id.* at 13-14, 16.

¹⁹ *See generally* NRC-FEMA MOU.

An operating nuclear facility can provide a significant and ongoing economic stimulus to the surrounding communities and region. However, when a facility terminates operations and begins decommissioning, there is usually an immediate economic impact on surrounding communities, including EJ communities.²⁰ Shutdown of a nuclear facility results in the loss of jobs and tax revenue.²¹

The NRC does not have a role in licensee decisions to terminate operations and enter into decommissioning; this is a licensee business decision. Rather, as a regulator of the decontamination and decommissioning of nuclear facilities, the NRC is responsible for ensuring that regulatory requirements are met throughout the decommissioning process. For example, the NRC reviews decommissioning or license termination plans and conducts inspections to ensure that radioactive contamination is reduced or stabilized. The NRC also has analyzed the generic environmental impacts from decommissioning activities at nuclear facilities in NUREG-0586, *Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities* (August 1988) and in Supplement 1 (November 2002). Socioeconomic impacts related to the decision to permanently cease operations include “impacts that result directly and immediately from the act of permanently ceasing operations, regardless of when or why the decision was made” (Section 1.3 of Supplement 1). As issues related to a licensee’s business decision to terminate operations are outside the NRC’s regulatory authority, they also are outside the scope of NUREG-0586.

The NRC currently is conducting a rulemaking to amend NRC regulations related to decommissioning of production and utilization facilities. Environmental considerations are included in this rulemaking activity.²² As part of this rulemaking process, there could be changes or clarifications to environmental related considerations, which could include EJ considerations. Given ongoing work, potential decommissioning-related rulemaking changes were not considered as part of this EJ review.

What the Staff Learned

During the review, commenters expressed confusion regarding the NRC’s authority versus other Federal agencies with respect to addressing socioeconomic impacts of a nuclear facility terminating operation, and there currently is not clear and easily accessible information for stakeholders regarding the role of the NRC versus other Federal agencies that may have authority to provide assistance. Further, some commenters also expressed the view that the NRC, as part of the larger Federal family, should address these socioeconomic impacts. The staff is not aware of studies or research that have measured the direct impacts to EJ communities resulting from nuclear facility closures to determine if EJ communities could be

²⁰ The scale of the impact depends on various factors including the type of nuclear facility, the extent of operations activities that are ceasing, prevailing economic conditions, and the swiftness of changes.

²¹ For examples of socioeconomic impacts from the closure of a nuclear facility, see PA Strategies, *Economic and Property Tax Impact Analysis: A Report Analyzing the Economic Impact of the Maine Yankee Decommissioning and Future Economic Projections with Site Development* (2001), and The Nuclear Decommissioning Collaborative, Inc., *Socioeconomic Impacts from Nuclear Power Plant Closure and Decommissioning* (2020).

²² See SECY-18-0055, Proposed Rule: Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning (May 7, 2018) ([ML18012A021](#)). On November 3, 2021, the Commission approved this proposed rule for publication with revisions. See SRM-SECY-18-0055, Proposed Rule: Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning (Nov. 3, 2021) ([ML21307A056](#)). This proposed rule was published for comment in the *Federal Register* on March 3, 2022 (87 Fed. Reg. 12,254).

disproportionately affected. Commenters described economic impacts and economic hardships in local communities resulting from nuclear facility closure. For example, one commenter stated that the Zion Nuclear Generating Station “was a centerpiece of the Zion-Benton economy, so its premature shutdown was detrimental to the community and to the schools funded by those property taxes. More than 20 years after the plant was decommissioned, Zion schools still spend about \$3,000 less per student than neighboring schools like Grayslake North and Central.”²³

Commitment

While mitigating the economic impacts from nuclear facility shutdown is outside the NRC’s authority, the NRC staff commits to clarify its role in guidance, as appropriate. In addition, the NRC staff commits to engage with other Federal agencies to better understand their roles in mitigating socioeconomic impacts from licensee business decisions in this area so that it can provide information, as appropriate, to stakeholders. For example, when the NRC receives questions from State and local governments and communities, as part of existing processes and outreach, the NRC could provide clarifying information related to Federal financial assistance that may be available. This would include providing information about Federal agencies that could offer financial assistance, such as the Economic Development Administration, as well as any available information related to EJ communities and Tribal nations; the NRC could also clarify the scope of the NRC’s authority. The benefit of this commitment is that it would improve consistency in communications, and support the Principles of Good Regulation.

4. Commitment to assess enhancing the consideration of environmental justice in regulatory cost-benefit analysis guidance.

As part of its review of whether EJ is appropriately considered and addressed in the agency’s programs, policies, and activities, the staff considered how EJ is addressed in regulatory cost-benefit analyses.

Background

The NRC staff has been working on updates to cost-benefit guidance for the last several years. This initiative started in 2012, when the NRC staff recommended enhancing the currency and consistency of the existing regulatory framework through updates to several cost-benefit analysis guidance documents.²⁴ As part of this process, the NRC staff developed, with public input,²⁵ new appendices to the NRC’s existing NUREG/BR-0058, *Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission*, that address specific topics in-depth. The updated guidance documents, including many of the new appendices, have been provided to the Commission for approval.²⁶ In addition, the Commission recently approved the NRC

²³ Email, Hayes Written Comments for 10/21/21 NRC EJ Meeting, dated Oct. 21, 2021 ([ML21297A006](#)).

²⁴ See SECY-12-0110, “Consideration of Economic Consequences within the U.S. Nuclear Regulatory Commission’s Regulatory Framework,” (Aug. 14, 2012) ([ML12173A478](#)); SECY-14-0002, “Plan for Updating the US Nuclear Regulatory Commission’s Cost-Benefit Guidance,” (Jan. 2, 2014) ([ML13274A495](#)) (identifying potential changes to current methodologies and tools related to performing cost-benefit analysis, and recommending a two-phased approach to revise the content and structure of three cost-benefit guidance documents, including NUREG/BR-0058, “Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission”).

²⁵ Cost-benefit guidance update, Public Meeting May 19, 2021 ([ML21137A007](#)).

²⁶ See SECY-20-0008, Draft Final NUREG/BR-0058, Revision 5, “Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission,” (Jan. 28, 2020) ([ML19261A277](#)).

guidance providing a reassessment of the NRC’s dollar per person-rem conversion factor policy.²⁷

In response to a 2013 Commission directive,²⁸ the NRC staff provided to the Commission the results of a regulatory gap analysis of the NRC’s cost-benefit regulations in SECY-14-0143.²⁹ The NRC staff identified several enhancements that may need further consideration in future cost-benefit analysis guidance updates. One of these enhancements is the “Consideration of Distributive Impacts and Equity in NRC Cost-Benefit Analyses.” The NRC staff also noted, “[b]ased on the analysis of cost-benefit practices within the NRC, the staff will continue to update, as appropriate, cost-benefit guidance to incorporate cost-estimating best practices.”

While not explicitly addressed in regulatory analyses, current NRC cost-benefit guidance and guidance for rulemakings include the consideration of EJ. For example, NUREG/BR-0058, Revision 5, includes the attribute “Environmental,” which incorporates National Environmental Policy Act (NEPA) reviews, including EJ considerations. While EJ is not a separate attribute in NRC regulatory cost-benefit analyses, the staff’s view is that attributes listed in NUREG/BR-0058 are reasonably comprehensive in addressing EJ-related issues for most regulatory decisions.

Other Federal agencies address EJ in cost-benefit analyses by focusing on economic and distributional effects on disadvantaged or vulnerable sub-populations. Low-income households are of particular concern.³⁰ For example, the Environmental Protection Agency conducts an equity assessment (e.g., the consideration of distributive impacts) in its regulatory analyses to examine the distribution of benefits and costs associated with a regulation across specific sub-populations.³¹

What the Staff Learned

Commenters expressed concern with how EJ is considered in NRC regulatory cost-benefit analyses and stated that current guidance may be discriminatory and should be revised. For example, commenters stated that the dollar per person-rem value used in NRC regulatory cost-benefit analyses does not include consideration of different health outcomes for different

²⁷ SECY-17-0017, Proposed Revision to NUREG-1530, “Reassessment of NRC’s Dollar per Person-rem Conversion Factor Policy,” (Jan. 30, 2017) ([ML16147A293](#)); SRM-SECY-17-0017, Proposed Revision to NUREG-1530, “Reassessment of NRC’s Dollar per Person-rem Conversation Factory Policy,” (Dec. 13, 2021) ([ML21347A846](#)).

²⁸ SRM-SECY-12-0110, “Consideration of Economic Consequences within the U.S. Nuclear Regulatory Commission’s Regulatory Framework,” (March 20, 2013) ([ML13079A055](#)).

²⁹ SECY-14-0143, “Regulatory Gap Analysis of the Nuclear Regulatory Commission’s Cost-Benefit Regulations, Guidance and Practices,” (Dec. 16, 2014) ([ML14339A803](#)).

³⁰ As described in Office of Management and Budget Circular A-4, regulatory analyses “should provide a separate description of distributional effects (i.e., how both benefits and costs are distributed among populations of particular concern) so that decision makers can properly consider them along with the effects of economic efficiency.” In addition, the analysis should include a description of “the magnitude, likelihood, and severity of impacts on particular groups” if distributional effects are expected to be important.

³¹ See U.S. EPA, “Technical Guidance for Assessing Environmental Justice in Regulatory Analysis” (June 2016), available at <https://www.epa.gov/environmentaljustice/technical-guidance-assessing-environmental-justice-regulatory-analysis> (last visited Feb. 8, 2022), and “Guidelines for Preparing Economic Analyses,” Chapter 10 Environmental Justice, Children’s Environmental Health and Other Distributional Considerations (December 17, 2010, updated May 2014), available at <https://www.epa.gov/environmental-economics/guidelines-preparing-economic-analyses> (last visited Jan. 12, 2022).

populations. Similarly, property values and the averted cost of an accident could result in a safety benefit not being cost beneficial in an area with lower property values when it would be cost beneficial in an area with higher property values.

The staff also heard that certain regulatory actions may have the potential to cause disproportionate human health and environmental effects on EJ populations, and that attributes such as these should be appropriately described and factored into the regulatory cost-benefit analysis.

Commitment

The staff considered the comments and reviewed NRC cost-benefit guidance in NUREG/BR-0058 (Revision 5). While EJ is considered in NRC regulatory cost-benefit analyses, the staff determined there may be opportunities for strengthening this consideration. Specifically, human health and environmental effects of a radiological release may not fully appreciate attributes unique to a specific nuclear facility site or of particular concern to potentially affected EJ communities or Tribal nations. For example, while EJ impacts are evaluated in NRC NEPA reviews and thereby included for consideration in regulatory analyses under the “Environmental” attribute, EJ is not otherwise explicitly addressed in regulatory analyses.

Accordingly, as part of the NRC staff’s existing commitment to update cost-benefit guidance, as needed, the NRC staff will assess the potential effects of a more rigorous consideration of human health and environmental effects on EJ communities and Tribal nations in cost-benefit analyses. This would be done following the completion of the current regulatory cost-benefit analysis guidance update. This assessment would include consideration of other Federal agency EJ-related regulatory analysis guidance. The NRC staff would also assess how and if including these effects could impact the NRC regulatory cost-benefit analyses. This assessment would help ensure the NRC’s regulatory decisions continue to appropriately consider EJ. This assessment would be conducted using the existing cost-benefit analysis working group.

If the NRC staff determines additional revisions to cost-benefit guidance (e.g., NUREG/BR-0058) may be warranted, the NRC staff will seek Commission approval, as appropriate.

5. Commitment to consider lessons learned and knowledge gained during this environmental justice review in environmental review guidance updates.

As part of its review of whether environmental justice (EJ) is appropriately considered and addressed in the agency’s programs, policies, and activities, the staff considered how the agency addresses EJ in its guidance documents.

Background

The NRC has a well-established NEPA review process with regulatory requirements codified in 10 C.F.R. Part 51. In addition, publicly available NRC standard environmental review plans describe methodologies (including EJ) used in each NEPA review.

The NRC welcomes comments and recommendations identifying environmental issues, problems, or opportunities for improvement during each regulatory and licensing review. The NRC technical staff is constantly evaluating the quality of each environmental review and impacts analysis, as well as information gained from previous environmental reviews. When updating environmental review guidance, the NRC staff relies on lessons learned and

knowledge gained about environmental issues identified during previous environmental reviews. The NRC staff also considers public comments that validate existing and identify new environmental issues that should be addressed in subsequent environmental reviews. To facilitate this, comments are often included in an NRC comment database.

The NRC staff is currently committed to updating environmental NEPA review guidance (including EJ, climate, Tribal policy, and cumulative effects) in rulemakings for new and advanced reactors³² and operating reactor license renewals.³³ The NRC staff is also updating NUREG-1748, “Environmental Review Guidance for Licensing Actions Associated with NMSS Programs” ([ML032450279](#)).

What the Staff Learned

The staff received comments concerning a range of human health and environmental issues currently addressed in NRC NEPA reviews for regulatory and licensing actions. For example, commenters stated they do not want low-level or high-level radioactive waste coming to their state and communities. Others expressed concern about the cumulative effects of radiation, and other stressors in the environment, as well as emotional, mental, spiritual, and cultural harms caused by environmental contamination.

Commitment

Many of the issues raised during this EJ review are not specific to EJ and are being addressed outside of this process. For example, the cumulative effects of NRC regulatory or licensing actions are addressed in each NEPA review and this is one of the areas being reviewed for possible guidance update. Comments received during this EJ review have been added to the NRC comment database. While the NRC staff does not commit to respond to these comments individually or address them in individual licensing actions, the NRC staff can consider these comments in the next round of environmental review guidance updates consistent with existing practices. As noted in SECY-21-0066, the NRC staff considers lessons learned and knowledge gained about environmental issues when it updates environmental review guidance.

³² See SECY-21-0098: Proposed Rule: Advanced Nuclear Reactor Generic Environmental Impact Statement, dated Nov. 29, 2021 ([ML21222A044](#)).

³³ See SECY-21-0066: Rulemaking Plan for Renewing Nuclear Power Plant Operating Licenses, dated July 22, 2021 ([ML20364A007](#)).