



September 25, 2018

FOIA Officer
Mail Stop T-2 F43
U.S. Nuclear Regulatory Commission
Washington, DC 20555
BY EMAIL: foia.resources@nrc.gov and
BY FOIAOnline

SUBJECT: *Freedom of Information Act Request*

Dear FOIA Officer:

On behalf of the Beyond Nuclear, and pursuant to the Freedom of Information Act ("FOIA") (5 U.S.C. § 552 et seq.) and U.S. Nuclear Regulatory Commission ("NRC") FOIA regulations, I am writing to request you for access to and copies of records generated or received by NRC relating to past, existing or proposed harvesting of aged materials from operating nuclear reactors and decommissioning or decommissioned nuclear reactors. The harvesting of reactor parts is described in the attached presentation by Hiser, et al., *Harvesting of Aged Material from Nuclear Power Plants* (RIC: 2018). The date range of the requested documents is January 1, 2015 to the present.

This request includes but is not limited to:

- 1) Internal records generated within the NRC (including but not limited to the NRC Office of Nuclear Reactor Research / Division of Engineering / Corrosion Metallurgy Branch ("RES/DE/CMB"), NRC Headquarters, and the Office of the Commission;
- 2) Records of external communications between the NRC and other parties, including but not limited to the Nuclear Energy Institute and the Electric Power Research Institute; and
- 3) Records of communications between the NRC and the national laboratories, including but not limited to Pacific Northwest National Laboratory and Oak Ridge National Laboratory.

If it is your position that records exist that are responsive to this request, but that those records (or portions of those records) are exempt from disclosure pursuant to the FOIA and NRC implementing regulations, please identify the records the records that are being withheld and state the basis for the denial for each record being withheld. In addition, please provide the non-exempt portions of the records.

Definition of "Records"

The term "record" should be construed to mean any written, recorded, or graphic matter of any nature whatsoever, regardless of how recorded, and whether original or copy, including, but not



limited to, the following: memoranda, reports, expense reports, books, manuals, instructions, financial reports, working papers, records, notes, letters, notices, confirmations, telegrams, receipts, appraisals, pamphlets, magazines, newspapers, prospectuses, interoffice and intra-office communications, electronic mail (e-mail), contracts, cables, notations of any type of conversation, telephone calls, meetings or other communications, bulletins, printed matter, computer printouts, teletypes, invoices, transcripts, diaries, analyses, returns, summaries, minutes, bills, accounts, estimates, projections, comparisons, messages, correspondence, press releases, circulars, financial statements, reviews, opinions, offers, studies and investigations, questionnaires and surveys, and work sheets (and all drafts, preliminary versions, alterations, modifications, revisions, changes, and amendments of any of the foregoing, as well as any attachments or appendices thereto), and graphic or oral records or representations of any kind (including without limitation, photographs, charts, graphs, voicemails, microfiche, microfilm, videotape, recordings and motion pictures), electronic and mechanical records or representations of any kind (including, without limitation, tapes, cassettes, disks, computer server files, computer hard drive files, CDs, DVDs, memory sticks, and recordings) and other written, printed, typed, or other graphic or recorded matter of any kind of nature. A record bearing any notation not a part of the original text is to be considered a separate record. A draft of a non-identical copy is to be construed as a separate record.

The terms "relating" and "regarding" with respect to any given subject, should be construed to mean anything that constitutes, contains, embodies, reflects, identifies, states, refers to, deals with or is in any manner whatsoever pertinent to that subject. The inclusion and description of particular records in this request should not be construed to eliminate other records that are not described in particular detail if they should exist in another format.

Request for Documents in Electronic Format

If possible, please provide the requested documents in electronic (pdf) format.

Request for Waiver of Fees

Pursuant to federal regulations at 10 CFR 9.41, Beyond Nuclear requests that any searching and copying fees incurred as a result of this search be waived. Beyond Nuclear satisfies all of the NRC's criteria in 10 C.F.R. § 9.41(b) for this FOIA request:

- 1) *Purpose of request:* The purpose of the request is to gather information on the NRC oversight and regulation of the operational safety and reliability of nuclear power generating stations seeking Subsequent License Renewal, particularly with respect to the value of considering information gained from evaluating the condition of components from decommissioned reactors. The requested information is currently not publicly available through the agency's public document room.
- 2) *Extent to which Beyond Nuclear will extract and analyze the substantive content of the records:* Beyond Nuclear is qualified to make use of the requested information. Its staff has demonstrated the ability to interpret information and communicate that information in a form comprehensible to the general public. Beyond Nuclear is quoted in national and international



media and has been cited as a reliable source of information on NRC oversight and enforcement of regulation regarding the operation of nuclear power generating stations and public safety in electronic and print media including newspapers such as the New York Times and the Washington Post. Beyond Nuclear is recognized and utilized as a reliable source of information in the broadcast media of television, radio and the worldwide web. Beyond Nuclear has a working relationship with physicists, structural and nuclear engineers, federal policy analysts and other respected professionals who contribute to the full understanding of the NRC oversight and regulation of operational safety and reliability of nuclear power generating stations seeking Subsequent License Renewal.

- 3) *Nature of the specific activity or research in which the records will be used and Beyond Nuclear qualifications to utilize the information for the intended use in such a way that it will contribute to public understanding:* Beyond Nuclear seeks the requested information solely to contribute to and help shape the public policy debate on NRC oversight, regulation and licensing of nuclear power stations seeking Subsequent License Renewal. Beyond Nuclear intends to use the information in order to advance the concerns for public understanding of NRC oversight and enforcement of regulation regarding the operational safety of nuclear power generating stations seeking Subsequent License Renewal.
- 4) *Likely impact on the public understanding of the subject as compared to the level of understanding of the subject prior to disclosure:* The public understanding of the issues regarding NRC oversight and enforcement of requirements for the protection of public safety will be enhanced by the contribution of this information.
- 5) *Size and nature of the public to who's understanding a contribution will be made:* Beyond Nuclear has a membership of 23,000 who periodically receive communications from Beyond Nuclear. Beyond Nuclear provides resource material to electronic and print media outlets with very broad outreach to a constituency and the interested public. Additionally, Beyond Nuclear maintains a web site at www.BeyondNuclear.org, where postings on this issue will be made available.
- 6) *Means of distribution of the requested information:* Beyond Nuclear will use its publications and media contacts in both electronic and print media outlets to provide very broad outreach to the public on this issue. Beyond Nuclear will also share information with other interested parties concerned about NRC oversight and enforcement of public safety requirements. Additionally, Beyond Nuclear will post information on its web site.
- 7) *Whether free access to information will be provided:* Beyond Nuclear will provide the information without charge to all members of the public. Information from the FOIA requested will be prepared for printed material and electronically posted on the web site for downloading free of charge. Beyond Nuclear will provide a copy of information to all interested public without charge.
- 8) *No commercial interest by Beyond Nuclear or any other party:* Beyond Nuclear is a nonprofit charitable organization and therefore has no commercial interest in obtaining the requested information. This information is provided to all public requests without charge.



The sole interest of Beyond Nuclear is to promote an open policy debate on the quality of NRC oversight, operational licensing and enforcement of requirements for the protection of public safety.

Thank you very much for your prompt attention to this request. We look forward to receiving your response within 20 working days, as required by 10 C.F.R. § 9.25(a). In the meantime, please call me at 240-393-9285 if you have any questions regarding this request.

Sincerely,

A handwritten signature in black ink, appearing to read 'Diane Curran', written in a cursive style.

Diane Curran

Counsel to Beyond Nuclear

Cc: Paul Gunter, Beyond Nuclear



Harvesting of Aged Materials from Nuclear Power Plants

M. Hiser^a, P. Purtscher^a, P. Ramuhalli^b, A.B. Hull^a, and R. Tregoning^a; ^aU.S. Nuclear Regulatory Commission (NRC), ^bPacific Northwest National Laboratory

Background and Motivation

Recent developments in the nuclear industry include stronger interest in extended plant operation and plans to shut down a number of nuclear power plants (NPPs). In the United States, there is strong interest in extending NPP lifespans through subsequent license renewal (SLR) from 60 to 80 years.

Extended plant operation and SLR raise a number of technical issues that may require further research to understand and quantify aging mechanisms. U.S. utilities and the U.S. Nuclear Regulatory Commission (NRC) have focused on the aging of systems, structures, and components and in particular four key SLR issues: reactor pressure vessel embrittlement, irradiation-assisted stress-corrosion cracking of reactor internals, concrete structures and containment degradation, and electrical cable qualification and condition assessment.

Meanwhile, in recent years, a number of NPPs, both in the United States and internationally, have shut down or announced plans to shut down for various reasons, including economic, political, and technical challenges. Unlike in the past when there were very few plants shutting down, these new developments provide opportunities for harvesting components that were aged in representative light-water reactor environments.

In a third related development, economic challenges and limited budgets have restricted the resources available to support new research, including harvesting programs. Given this constrained budget environment, aligning interests and leveraging with other organizations is important to allow maximum benefit and value for future research programs.

Current Activities

The NRC has recently undertaken an effort, with the assistance of Pacific Northwest National Laboratory, to develop a strategic approach to harvesting aged materials from NPPs. Because of limited opportunities, past harvesting efforts have been reactive to individual plants shutting down and beginning decommissioning. Given the expected availability of materials from numerous plants and anticipated research needs to better understand aging out to 80 years of operation, the NRC is pursuing a more proactive approach to prioritize the data needs best addressed by harvesting and identify the best sources of materials to address high-priority data needs for regulatory research.

The first step in this strategic approach is to prioritize data needs for harvesting. A data need describes a particular degradation scenario and should be defined with as much detail as appropriate in terms of the material (alloy, composition, etc.) and environment (temperature, fluence, chemistry, etc.).

Potential Criteria for Harvesting Prioritization

A number of criteria may be considered when prioritizing the data needs for harvesting, including the following:

- Applicability of harvested material for addressing critical gaps
 - Harvesting for critical gaps is prioritized over less essential technical gaps.
- Ease of laboratory replication of the degradation scenario
 - For example, simultaneous thermal and irradiation conditions are difficult to replicate, and accelerated aging may not be feasible for a mechanism sensitive to dose rate.
- Unique field aspects of degradation
 - For example, unusual operating experience or legacy material (fabrication methods, etc.) is no longer available.
- Fleet-wide vs. plant-specific applicability of data
 - There is greater value in addressing an issue applicable to a larger number of plants.
- Harvesting cost and complexity
 - For example, harvesting unirradiated concrete or electrical cables is less expensive and less complex than harvesting from the reactor internals or reactor pressure vessel.
- Availability of reliable in-service inspection (ISI) techniques for the material/component
 - If mature inspection methods exist and are easy to apply, harvesting may be less valuable.
- Availability of materials for harvesting
- Timeliness of the expected research results relative to the objective.



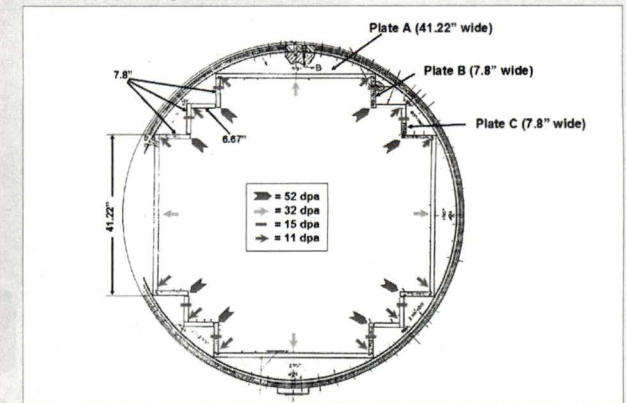
Lifting operation for irradiated materials transport cask

Harvesting Database

The NRC is pursuing the development of a database for sources of materials for harvesting, which could include both previously harvested materials and those available for future harvesting. This database would allow for aligning high-priority data needs to the available sources of materials. The level of detail for the database should be appropriate for the factors influencing decisionmaking. The NRC is interested in engaging with other organizations in developing the database.

Path Forward

In the NRC's experience, harvesting can yield highly representative and valuable data on materials aging, but these efforts will be challenging. Having a clearly defined objective and early engagement with other stakeholders are keys to success. As specific harvesting opportunities are identified through this strategic approach, the NRC welcomes opportunities for cooperation and leveraging of resources with other interested research organizations.



Example of reactor internals harvesting plan