

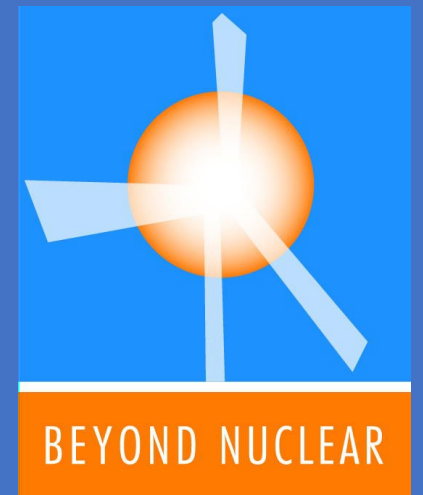
“Mind the Gap”

Decommissioning’s Critical Link to Public Safety & Extended Reactor Operations

June 18, 2026

**New York Decommissioning Oversight Board
and Holtec International’s Indian Point Project**

**Paul Gunter
Reactor Oversight Project
Beyond Nuclear**



The NRC's Ongoing Decommissioning Rulemaking Process

In November 2015, the U.S. Nuclear Regulatory Commission's (NRC) issued proposed rulemaking, "Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning." Still under active agency review, the final rule is presently scheduled for publication on August 31, 2026. Beyond Nuclear has filed docketed comments .

Beyond Nuclear is focused on decommissioning's critical connection to operating license extensions that significantly affect an increase in risk to public health, safety and environmental protection.

NRC Docket ID-2015-0070 Rulemaking, Nov, 2015 "Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning," < <https://www.regulations.gov/docket/NRC-2015-0070> >

Beyond Nuclear Comments of Paul Gunter (August 30, 2023)
< <https://www.nrc.gov/docs/ML2224/ML22243A098.pdf> >



The NRC and the U.S. Department of Energy (DOE) have recognized decommissioning as a significant opportunity to provide the *“reasonable assurance”* for public safety and reliable reactor operations and the extended federal licensing process (license renewal and, in this matter, the recommissioning of permanently closed and aged reactors).





Statement of Work (SOW)
September 4, 2015, NRC contracts
with Pacific Northwest National
Laboratory (PNNL) to develop NRC
criteria and guidance to address
numerous *“knowledge gaps”*
needed to provide *“reasonable
assurance”* of license compliance
and NRC safety reviews for
operating reactor license
extensions.

NRC/DOE contract < <https://bit.ly/4xm2QmW> >

NRC/PNNL agreement language for a “Strategic Approach for Obtaining Material and Component Aging Information”



- PNNL shall identify and document “*information and technical gaps*”;
- In “*identifying gaps*”, PNNL shall include industry practices endorsed by NRC with respect to addressing degradation & the assurance of retention of design margins during the subsequent license extension period (60 to 80);
- PNNL shall recommend experimentation and analytical model development;
- “deliverables shall be in the form of technical letter reports” (TLR)



NRC-HQ-60-15-T-0023, NRC contract w/ PNNL, September 4, 2015, released in FOIA 2018-000831

Decommissioning is the “opportunity” to validate safety



- **Develop a long range strategy for the acquisition of age degradation information for metals, weld materials, internals, concrete and electrical cables**
- **... “but has been very difficult or impossible to obtain from the operating fleet.”**
- **There is a need to harvest and analyze “experiential real-world” materials from decommissioning nuclear power plants**
- **Identify the “*technical gaps*” in knowledge and understanding of age degradation into the projected 60- to 80-yr relicensing period.**



“Strategic Approach for Obtaining Material and Component Aging Information”

“The biggest challenges for the NRC and the industry will be addressing the major technical issues for this second ‘*subsequent*’ license renewal (SLR) beyond sixty years” involving priority systems, structures and components:

- Reactor pressure vessel (RPV) neutron embrittlement;**
- Irradiation assisted degradation (IAD) of reactor internals and primary components;**
- Concrete and containment degradation;**
- Electrical cable qualification and condition assessment**

The national laboratory's a Technical Letter Report (PNNL-27120) was published on December 7, 20 17 and posted to the public websites of:

- Pacific Northwest National Laboratory (PNNL);**
- IAEA International Nuclear Information Service (INIS);**
- DOE Office of Scientific and Technical Information (OSTI), and;**
- Provided the US Department of Commerce.**

Criteria and Planning Guidance for Ex-Plant Harvesting to Support Subsequent License Renewal

December 2017

P Ramuhalli
R Devanathan
RM Meyer

SW Glass
K Knobbs



Prepared for the U.S. Nuclear Regulatory Commission
under a Related Services Agreement with the U.S. Department of Energy
CONTRACT DE-AC05-75RL01830

U.S. DEPARTMENT OF
ENERGY

IAEA describes PNNL-27120:
The NRC and industry need to
address technical issues,
functionality objectives and the
projected safety margins in long-
lived passive components.
*“These criteria are based on an
evaluation of technical gaps
identified in the literature, research
needs to address these technical
gaps, and lessons learned from
previous harvesting campaigns”.*

IAEA website summary of PNNL-27120
< <https://inis.iaea.org/records/n9gdv-bsf97> >

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2.0 MATERIALS HARVESTING
“A key challenge to addressing the gaps in materials aging and degradation through 80 years of operation is the ability to perform tests that mimic the aging process in operating plants.”

“Where available, benchmarking can be performed using surveillance specimens. In most cases, however, benchmarking of laboratory tests will require harvesting materials from reactors.”

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Technical Letter Report excerpts (PNNL-27120), posted Dec. 2017

Technical knowledge “*gaps*” cited 60 times

“Further, a number of technical gaps have been identified in the understanding of degradation growth in specific materials.”

“Harvested materials can be used to address critical knowledge gaps in two areas; 1) calibration and validation of current accelerated testing procedures; and 2) assessment of combined effects of thermal aging, coolant effects and neutron irradiation.”

“Harvested materials can be used to address technical gaps related to crack initiation susceptibility and crack growth rates.”

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PNNL-27120 Recommendations

“Many of remaining questions regarding degradation of materials will likely require a combination of laboratory studies as well as other research conducted on materials sampled from plants (decommissioning and operating).” [Summary]

“Where available, benchmarking can be performed using surveillance specimens. In most cases, however, benchmarking of laboratory tests will require harvesting materials from reactors.”

[2.0 Nuclear Plant Materials Harvesting]

NRC removed PNNL-27120 from government websites following questioning by Beyond Nuclear in an NRC public meeting on September 28, 2018. The Technical Letter Report was public for roughly ten months. NRC explains that the published report was a “draft” that was mistakenly released.

There are no marks or text on the published December 7, 2017 Technical Letter Report that it is in draft form.

Beyond Nuclear filed a Freedom Of Information Act request (FOIA 2018-000831) constituting many pages.

**“General Comments” by NRC Nuclear Reactor Regulation/
Division Material License Renewal (NRC NRR/DMLR)**

“The word ‘gap’ is overused in the report—63 times.”

“How do we issue the GALL-SLR (Generic Aging Lessons Learned-Subsequent License Renewal) with technical gaps and how are we going to be able to issue a renewal license if there are technical gaps in reaching a reasonable assurance conclusion?”

“I get what the author (PNNL) is trying to state. However, if I were an intervener I would use this document to shutdown SLRA (Subsequent License Renewal Applications).”

NRC/ NRR/ DLR “General Comments” continued...

“Consider a different word choice instead of ‘technical gap’, which has a pejorative connotation of no knowledge or no basis for regulatory decisions.”

August 23, 2018 (PNNL technical letter report public since December 2017), an exchange of emails between NRC Office of Research staff:

“I agree that the use of ‘gap’ needs to be scaled back even more. In a few places I’ve been replacing ‘gap’ with ‘issue.’”

Reply, “I still think ‘technical issue’ would raise the same concern from NRR as ‘technical gap’. It should be OK to use ‘technical gap’ for pre-GALL-SLR documents, but not after that.”

NRC/ NRR/ DLR “General Comments” continued...

“The phrase ‘real world’ should be replaced with more accurate terminology, for example, ‘in-service condition,’ ‘service aging,’ or ‘operating reactor service time’ depending on the context. Otherwise, it implies that current guidance is not based on relevant data/knowledge.”

“Big picture, I think that the entire report needs to be scrubbed for text that points to gaps and if issued we will need a stronger basis for why we will grant renewed licenses before the harvesting and testing is completed.”

**“General Comments” by technical staff NRC/ NRR/ Materials/
DLR regarding PNNL-27120, March 20, 2018**

The NRC republished a public release of PNNL-27120 Rev.1 in March 2019 *“scrubbed”* of recommendations and all references to *“knowledge gaps.”*

NRC has provided no comments or justification for deleting PNNL references to *“require”* harvesting and lab analysis and how or if the scrubbed *“technical gaps”* were scientifically qualified or merely erased.

NRC PNNL-27120 Rev, March 2019,
<https://www.nrc.gov/docs/ML1908/ML19081A006.pdf>

Criteria and Planning Guidance for Ex-Plant Harvesting to Support Subsequent License Renewal

March 2019

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NRC /PNNL-27120 Rev.1 is not reposted to:

- **Pacific Northwest National Laboratory (PNNL);**
- **IAEA International Nuclear Information Service (INIS);**
- **DOE Office of Scientific and Technical Information (OSTI), and;**
- **US Department of Commerce.**

A side by side comparison

“Where available, benchmarking can be performed using surveillance specimens. In most cases, however, benchmarking of laboratory tests will require harvesting materials from reactors.”

[PNNL-27120, December 2017, p.16 of 52]

“Where available, such benchmarking can be performed using surveillance specimens exposed to field conditions during the course of operation of the reactor. However, surveillance specimens are often limited to critical components such as the RPV, and do not exist for components in other locations in a plant. In such cases, benchmarking of laboratory tests may be achieved by harvesting materials from reactors.”

[PNNL-27120 Rev. 1, March 2019, p.11 of 41]

THE HOLTEC INTERNATIONAL SITUATION

CLOSED AND DECOMMISSIONING INDIAN POINT (3 UNITS)

**PRESSURIZED WATER
REACTOR (1032 MWe)
UNIT 2 OPERATED 46 YRS
UNIT 3 OPERATED 45 YRS**

**EXPRESSED
CONDITIONAL INTEREST
W/ U.S. DOE COACHING
RESTART BUT STRONG
POLITICAL OPPOSITION**

CLOSED BUT RECOMMISSIONING PALISADES (1 UNIT)

**PRESSURIZED WATER
REACTOR (800 MWe)
UNIT 1 OPERATED 50YRS**

**ACTIVELY PURSUING
RESTART &
A LETTER OF INTENT FOR
SUBSEQUENT LICENSE
RENEWAL**

QUESTIONS?



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