

**From:** Hiser, Matthew  
**Sent:** Wed, 27 Sep 2017 17:19:23 +0000  
**To:** Moyer, Carol; Purtscher, Patrick  
**Cc:** Hull, Amy  
**Subject:** Re: FW: PLiM abstract on harvesting

Hi Carol and Pat,

I haven't had the chance to look at your edits, but I'm sure they're good and I appreciate you taking the time to review and especially push it through to Steve and Brian.

I'll be back next week to help finish the approval or shepherd the poster printing process if needed.

Thanks!

Matt

---

On: 27 September 2017 12:38, "Moyer, Carol" <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)> wrote:  
Thank you, Pat. I think your edits are further improvements. I will incorporate them into the PPT file.  
Carol

---

**From:** Purtscher, Patrick  
**Sent:** Wednesday, September 27, 2017 12:06 PM  
**To:** Moyer, Carol ; Hiser, Matthew  
**Cc:** Hull, Amy  
**Subject:** RE: FW: PLiM abstract on harvesting  
[Here are some more nitpicky edits to consider or reject before you give it to Steve.](#)  
Pat

---

**From:** Moyer, Carol  
**Sent:** Wednesday, September 27, 2017 11:31 AM  
**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>  
**Cc:** Purtscher, Patrick <[Patrick.Purtscher@nrc.gov](mailto:Patrick.Purtscher@nrc.gov)>; Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>  
**Subject:** RE: FW: PLiM abstract on harvesting

Hi Matt,

I think the poster looks really good. It is wordy, but for what it is, I think that is fine. You have two eye-catching figures in it, at least, even if they are not directly referenced by the text.

I made some nitpicky edits to the text. I also cut a few words that I thought were redundant (in Current Activities) or that made a sentence unnecessarily convoluted (in Harvesting Database).

Amy has her hands full with other near-term stuff this week, I think. **Pat** – Do you have a chance to provide a second opinion on this? I will do the release form (390) to go with it for Steve's approval.

-Carol

---

**From:** Hiser, Matthew

**Sent:** Friday, September 15, 2017 11:07 AM

**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>; Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>

**Cc:** Purtscher, Patrick <[Patrick.Purtscher@nrc.gov](mailto:Patrick.Purtscher@nrc.gov)>

**Subject:** RE: FW: PLiM abstract on harvesting

Hi Amy and Carol,

Here's my initial stab at the harvesting poster for PLiM.

Please take a look and let me know what you think.

Thanks!

Matt

---

**From:** Moyer, Carol

**Sent:** Friday, July 21, 2017 11:26 AM

**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>; Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>

**Subject:** RE: FW: PLiM abstract on harvesting

Thank you both!

The conference website is here: [http://www-](http://www-pub.iaea.org/iaea meetings/50811/Fourth-International-Conference-on-Nuclear-Power-Plant-Life-Management)

[pub.iaea.org/iaea meetings/50811/Fourth-International-Conference-on-Nuclear-Power-Plant-Life-Management](http://www-pub.iaea.org/iaea meetings/50811/Fourth-International-Conference-on-Nuclear-Power-Plant-Life-Management)

Poster guidelines are here: [http://www-](http://www-pub.iaea.org/MTCD/Meetings/PDFplus/2017/cn246/cn246PosterGuidelines.pdf)

[pub.iaea.org/MTCD/Meetings/PDFplus/2017/cn246/cn246PosterGuidelines.pdf](http://www-pub.iaea.org/MTCD/Meetings/PDFplus/2017/cn246/cn246PosterGuidelines.pdf)

No specific due date is listed for posters.

M. Key Dates and Deadlines

Submission of Form for Submission of a Paper (Form B)

and extended synopsis (800 words) 28 May 2017

Submission of Grant Application Form (Form C): 28 May 2017

Notification of acceptance of papers/posters: 30 June 2017

Submission of full paper (only upon request by the IAEA): 18 October 2017

Posters may only be "due" at the conference itself? It would not hurt to have it done by 18 Oct., the paper deadline, though. It is unclear to me what they would do with a full paper, if one was not requested by IAEA. But I think you can prepare one, if you like. If they will not publish it as part of PLiM, we can find another home for it, or just release it as an NRC document.

-Carol

---

**From:** Hiser, Matthew

**Sent:** Friday, July 21, 2017 11:12 AM

**To:** Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>; Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>

**Subject:** RE: FW: PLiM abstract on harvesting

OK, I can work with Amy to make a poster. Rob and Pat and our PNNL contractor are also listed as co-authors...

---

**From:** Hull, Amy

**Sent:** Friday, July 21, 2017 11:08 AM

**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>; Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>

**Subject:** RE: FW: PLiM abstract on harvesting

I think this is a good opportunity to publicize harvesting work and develop collaboration. Task 2 in UNR. I will make the poster. When is it due?

---

**From:** Moyer, Carol

**Sent:** Friday, July 21, 2017 10:57 AM

**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>; Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>

**Subject:** RE: FW: PLiM abstract on harvesting

I'm pretty ambivalent about it. Amy, do you have a strong desire to make up a poster for the PLiM? Are there other co-authors to be consulted?

-Carol

---

**From:** Hiser, Matthew

**Sent:** Friday, July 21, 2017 7:28 AM

**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>

**Subject:** RE: FW: PLiM abstract on harvesting

Hi Carol,

Not terribly interested in a poster... The other thing is then you'd have to babysit the poster during poster session(s)?

I'd suggest we say thanks for the offer, but that's alright... what do you think?

Thanks!

Matt

---

**From:** Moyer, Carol

**Sent:** Thursday, July 20, 2017 12:49 PM

**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>

**Subject:** FW: FW: PLiM abstract on harvesting

Matt,

I am a bit confused by the pronoun used in this email...

Are you interested in doing a poster instead?

Carol

---

**From:** KRIVANEK, Robert [<mailto:R.Krivanek@iaea.org>]

**Sent:** Thursday, July 20, 2017 11:10 AM

**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>

**Subject:** [External\_Sender] FW: PLiM abstract on harvesting

You have just agreed that we will add this paper to poster session.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |

LTO Programme Manager

Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |

International Atomic Energy Agency | Vienna International Centre, PO Box 100, 1400 Vienna, Austria |

Email: [r.krivanek@iaea.org](mailto:r.krivanek@iaea.org) | T: (+43-1) 2600-22018 | F: (+43-1) 2600-26007 |



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**From:** KRIVANEK, Robert

**Sent:** Thursday, 20 July 2017 16:10

**To:** 'Carol.Moyer@nrc.gov' <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>

**Subject:** FW: PLiM abstract on harvesting

Dear Carol,

We asked you to submit your synopsis through INDICO (see email below) but it did not happen. So we were not able to send your synopsis to programme committee for evaluation and it will not occur on the conference programme. Sorry for that but there are currently 300 delegates and 150 synopsis, so we were not able to track each of them separately.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |

LTO Programme Manager

Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |

International Atomic Energy Agency | Vienna International Centre, PO Box 100, 1400 Vienna, Austria |

Email: [r.krivanek@iaea.org](mailto:r.krivanek@iaea.org) | T: (+43-1) 2600-22018 | F: (+43-1) 2600-26007 |



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**From:** KRIVANEK, Robert

**Sent:** Friday, 26 May 2017 08:55

**To:** 'Carol.Moyer@nrc.gov' <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>

**Cc:** KHAELSS, Martina <[M.Khaelss@iaea.org](mailto:M.Khaelss@iaea.org)>

**Subject:** FW: PLiM abstract on harvesting

Dear Carol,

Thank you for your synopsis. We have opened INDICO system for this week, so please submit it through the system.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |

LTO Programme Manager

Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |

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**From:** [Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov) [<mailto:Carol.Moyer@nrc.gov>]

**Sent:** Friday, 26 May 2017 00:19

**To:** KRIVANEK, Robert <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>

**Cc:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>; Tregoning, Robert <[Robert.Tregoning@nrc.gov](mailto:Robert.Tregoning@nrc.gov)>; Frankl, Istvan <[Istvan.Frankl@nrc.gov](mailto:Istvan.Frankl@nrc.gov)>

**Subject:** PLiM abstract on harvesting

Dear Mr. Krivanek,

The US NRC would like to propose one more presentation for this autumn's PLiM conference, on harvesting of materials from operating and decommissioning power plants. I understand from Sherry Bernhoft that you already have an impressive number of abstracts, so I will understand if there is not room in the program for this one. Nevertheless, we would appreciate your consideration of this proposal.

Again, please let me know if you need any additional information. Many thanks,  
Carol

---

*Carol E. Moyer*  
Sr. Materials Engineer  
Office of Nuclear Regulatory Research  
RES/DE/CMB  
[carol.moyer@nrc.gov](mailto:carol.moyer@nrc.gov)  
301-415-2153

---

**From:** KRIVANEK, Robert [<mailto:R.Krivanek@iaea.org>]

**Sent:** Tuesday, May 23, 2017 2:41 AM

**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>

**Subject:** [External\_Sender] RE: RE: CN246\_PLiM\_Abstract deadline extended to 19 May 2017

Dear Carol,

I will arrange it. Thank you.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |

LTO Programme Manager

Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |

International Atomic Energy Agency | Vienna International Centre, PO Box 100, 1400 Vienna, Austria |

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**From:** [Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov) [<mailto:Carol.Moyer@nrc.gov>]

**Sent:** Monday, 22 May 2017 20:44

**To:** KRIVANEK, Robert <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>

**Subject:** RE: RE: CN246\_PLiM\_Abstract deadline extended to 19 May 2017

Dear Mr. Krivanek,

Since the formal deadline for abstract submissions has passed, I am no longer able to access the Indico system through the PLiM website (<https://conferences.iaea.org/indico/event/134/>). My abstract and Form B are attached.

Are you able to work with these documents? Is there anything else that you need me to do at this time?

Thanks again for your patience and assistance,

Carol

---

**From:** Moyer, Carol

**Sent:** Monday, May 22, 2017 10:59 AM

**To:** 'KRIVANEK, Robert' <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>

**Cc:** Frankl, Istvan <[Istvan.Frankl@nrc.gov](mailto:Istvan.Frankl@nrc.gov)>

**Subject:** RE: RE: CN246\_PLiM\_Abstract deadline extended to 19 May 2017

Dear Mr. Krivanek,

My abstract is attached to this message, for your info. Separately, I will submit it through the Indico system. Please let me know if you need any other information at this stage.

Thank you,

Mrs. Carol Moyer

---

**From:** KRIVANEK, Robert [<mailto:R.Krivanek@iaea.org>]

**Sent:** Monday, May 22, 2017 2:56 AM

**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>

**Cc:** Tregoning, Robert <[Robert.Tregoning@nrc.gov](mailto:Robert.Tregoning@nrc.gov)>

**Subject:** [External\_Sender] RE: CN246\_PLiM\_Abstract deadline extended to 19 May 2017

Dear Mr Moyer,

It will be fine if you submit your abstracts this week.

We are looking forward to see a strong NRC delegation in Lyon.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |

LTO Programme Manager

Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |

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---

**From:** [Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov) [<mailto:Carol.Moyer@nrc.gov>]

**Sent:** Friday, 19 May 2017 23:19

**To:** KRIVANEK, Robert <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>

**Cc:** KANG, Ki-Sig <[K.S.Kang@iaea.org](mailto:K.S.Kang@iaea.org)>; Tregoning, Robert <[Robert.Tregoning@nrc.gov](mailto:Robert.Tregoning@nrc.gov)>

**Subject:** RE: CN246\_PLiM\_Abstract deadline extended to 19 May 2017

Dear Mr. Krivanek,

The U.S. NRC intends to submit several abstracts for consideration for the PLiM conference in October. We have a short delay in completing one of our abstracts. I will be submitting it early next week, and I hope that you still will be able to consider it for the conference.

Thank you,  
Carol Moyer

---

*Carol E. Moyer*  
Sr. Materials Engineer  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
MS: T-10A36  
Washington, DC 20555-0001  
[carol.moyer@nrc.gov](mailto:carol.moyer@nrc.gov)  
301-415-2153

---

**From:** [R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org) [<mailto:R.Krivanek@iaea.org>]

**Sent:** Friday, April 21, 2017 8:44 AM

**To:** [R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)

**Subject:** [External\_Sender] CN246\_PLiM\_Abstract deadline extended to 19 May 2017

Dear all,

Please be informed that we extended the abstract submission deadline to 19 May 2017 and updated the conference accordingly.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |

LTO Programme Manager

Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |

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**From:** Hiser, Matthew  
**Sent:** Mon, 5 Jun 2017 13:26:28 +0000  
**To:** Moyer, Carol  
**Subject:** RE: FW: PLiM abstract on harvesting

Thanks for the heads-up Carol! Hopefully it can get worked out, but not the end of the world if not.

---

**From:** Moyer, Carol  
**Sent:** Thursday, June 01, 2017 5:25 PM  
**To:** Hiser, Matthew  
**Cc:** Tregoning, Robert  
**Subject:** FW: FW: PLiM abstract on harvesting

Matt,

(b)(6)

This email from IAEA was sent on Friday, 5/26 (while I was [REDACTED]). The abstract-submission system was re-opened for "this week," which turned out to mean through Sunday, 5/28. I tried again today to submit your abstract, and I was not successful.

I had sent it already as an attachment. I do not know whether they will be able (or willing) to consider your abstract, or mine, since they were not submitted the official way. We shall see. I just thought you should know where this stands.

Carol

---

**From:** KRIVANEK, Robert [<mailto:R.Krivanek@iaea.org>]  
**Sent:** Friday, May 26, 2017 2:55 AM  
**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>  
**Cc:** KHAELSS, Martina <[M.Khaelss@iaea.org](mailto:M.Khaelss@iaea.org)>  
**Subject:** [External\_Sender] FW: PLiM abstract on harvesting

Dear Carol,

Thank you for your synopsis. We have opened INDICO system for this week, so please submit it through the system.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |  
LTO Programme Manager  
Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |  
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**Cc:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>; Tregoning, Robert <[Robert.Tregoning@nrc.gov](mailto:Robert.Tregoning@nrc.gov)>; Frankl, Istvan <[Istvan.Frankl@nrc.gov](mailto:Istvan.Frankl@nrc.gov)>  
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Again, please let me know if you need any additional information. Many thanks,

Carol

---

*Carol E. Moyer*  
*Sr. Materials Engineer*  
*Office of Nuclear Regulatory Research*  
*RES/DE/CMB*  
[carol.moyer@nrc.gov](mailto:carol.moyer@nrc.gov)  
301-415-2153

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**From:** KRIVANEK, Robert [<mailto:R.Krivanek@iaea.org>]  
**Sent:** Tuesday, May 23, 2017 2:41 AM  
**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>  
**Subject:** [External\_Sender] RE: RE: CN246\_PLiM\_Abstract deadline extended to 19 May 2017

Dear Carol,

I will arrange it. Thank you.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |



LTO Programme Manager  
Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |  
International Atomic Energy Agency | Vienna International Centre, PO Box 100, 1400 Vienna, Austria |  
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**To:** KRIVANEK, Robert <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>  
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**To:** 'KRIVANEK, Robert' <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>  
**Cc:** Frankl, Istvan <[Istvan.Frankl@nrc.gov](mailto:Istvan.Frankl@nrc.gov)>  
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**Sent:** Monday, May 22, 2017 2:56 AM

**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>

**Cc:** Tregoning, Robert <[Robert.Tregoning@nrc.gov](mailto:Robert.Tregoning@nrc.gov)>

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LTO Programme Manager

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**From:** [Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov) [<mailto:Carol.Moyer@nrc.gov>]

**Sent:** Friday, 19 May 2017 23:19

**To:** KRIVANEK, Robert <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>

**Cc:** KANG, Ki-Sig <[K.S.Kang@iaea.org](mailto:K.S.Kang@iaea.org)>; Tregoning, Robert <[Robert.Tregoning@nrc.gov](mailto:Robert.Tregoning@nrc.gov)>

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Thank you,  
Carol Moyer

---

*Carol E. Moyer*

*Sr. Materials Engineer*

*U.S. Nuclear Regulatory Commission*

*Office of Nuclear Regulatory Research*

*MS: T-10A36*

*Washington, DC 20555-0001*

[carol.moyer@nrc.gov](mailto:carol.moyer@nrc.gov)

301-415-2153

---

**From:** [R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org) [mailto:[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)]

**Sent:** Friday, April 21, 2017 8:44 AM

**To:** [R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)

**Subject:** [External\_Sender] CN246\_PLIM\_Abstract deadline extended to 19 May 2017

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**Mr Robert KRIVANEK** | Senior Safety Officer |

LTO Programme Manager

Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |

International Atomic Energy Agency | Vienna International Centre, PO Box 100, 1400 Vienna, Austria |

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**From:** Hull, Amy  
**Sent:** Fri, 22 Sep 2017 09:02:49 -0400  
**To:** Hiser, Matthew; Moyer, Carol  
**Subject:** RE: FW: PLiM abstract on harvesting

I am under the gun with an Additive Manufacturing status briefing for Monday morning but I can do the followup work next week.

---

**From:** Hiser, Matthew  
**Sent:** Friday, September 22, 2017 8:46 AM  
**To:** Moyer, Carol <Carol.Moyer@nrc.gov>  
**Cc:** Hull, Amy <Amy.Hull@nrc.gov>  
**Subject:** RE: FW: PLiM abstract on harvesting

Thanks Carol! Please let me know if there's anything I can do remotely... I'll be checking email regularly as much as possible.

Thanks!  
Matt

---

**From:** Moyer, Carol  
**Sent:** Friday, September 22, 2017 8:23 AM  
**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>  
**Cc:** Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>  
**Subject:** RE: FW: PLiM abstract on harvesting

Hi Matt,

Thank you for the reminder! I have been really swamped with preparing for an SLR status briefing, and my own PLiM stuff, but I will try to look at your draft asap.

"God tur" (bon voyage)  
-Carol

---

**From:** Hiser, Matthew  
**Sent:** Friday, September 22, 2017 8:19 AM  
**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>; Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>  
**Cc:** Purtscher, Patrick <[Patrick.Purtscher@nrc.gov](mailto:Patrick.Purtscher@nrc.gov)>  
**Subject:** RE: FW: PLiM abstract on harvesting

I just wanted to send a reminder on this poster for PLiM. It looks like the lead time for a poster is 2-3 weeks ([http://www.internal.nrc.gov/ADM/manuscriptdev\\_print/graphics.html](http://www.internal.nrc.gov/ADM/manuscriptdev_print/graphics.html)), so we really need to finalize this quickly. I will be on travel next week, so I hope you guys may be able to run with this and get it signed off by Steve next week.

The contact for printing posters is [graphics.resource@nrc.gov](mailto:graphics.resource@nrc.gov) .

Thanks!

Matt

---

**From:** Hiser, Matthew

**Sent:** Friday, September 15, 2017 11:07 AM

**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>; Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>

**Cc:** Purtscher, Patrick <[Patrick.Purtscher@nrc.gov](mailto:Patrick.Purtscher@nrc.gov)>

**Subject:** RE: FW: PLiM abstract on harvesting

Hi Amy and Carol,

Here's my initial stab at the harvesting poster for PLiM.

Please take a look and let me know what you think.

Thanks!

Matt

---

**From:** Moyer, Carol

**Sent:** Friday, July 21, 2017 11:26 AM

**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>; Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>

**Subject:** RE: FW: PLiM abstract on harvesting

Thank you both!

The conference website is here: <http://www-pub.iaea.org/iaeameetings/50811/Fourth-International-Conference-on-Nuclear-Power-Plant-Life-Management>

Poster guidelines are here: <http://www-pub.iaea.org/MTCD/Meetings/PDFplus/2017/cn246/cn246PosterGuidelines.pdf>

No specific due date is listed for posters.

**M. Key Dates and Deadlines**

Submission of Form for Submission of a Paper (Form B)

and extended synopsis (800 words) 28 May 2017

Submission of Grant Application Form (Form C): 28 May 2017

Notification of acceptance of papers/posters: 30 June 2017

Submission of full paper (only upon request by the IAEA): 18 October 2017

Posters may only be "due" at the conference itself? It would not hurt to have it done by 18 Oct., the paper deadline, though. It is unclear to me what they would do with a full paper, if one was not requested by IAEA. But I think you can prepare one, if you like. If they will not publish it as part of PLiM, we can find another home for it, or just release it as an NRC document.

-Carol



---

**From:** Hiser, Matthew  
**Sent:** Friday, July 21, 2017 11:12 AM  
**To:** Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>; Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>  
**Subject:** RE: FW: PLiM abstract on harvesting

OK, I can work with Amy to make a poster. Rob and Pat and our PNNL contractor are also listed as co-authors...

---

**From:** Hull, Amy  
**Sent:** Friday, July 21, 2017 11:08 AM  
**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>; Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>  
**Subject:** RE: FW: PLiM abstract on harvesting

I think this is a good opportunity to publicize harvesting work and develop collaboration. Task 2 in UNR. I will make the poster. When is it due?

---

**From:** Moyer, Carol  
**Sent:** Friday, July 21, 2017 10:57 AM  
**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>; Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>  
**Subject:** RE: FW: PLiM abstract on harvesting

I'm pretty ambivalent about it. Amy, do you have a strong desire to make up a poster for the PLiM? Are there other co-authors to be consulted?

-Carol

---

**From:** Hiser, Matthew  
**Sent:** Friday, July 21, 2017 7:28 AM  
**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>  
**Subject:** RE: FW: PLiM abstract on harvesting

Hi Carol,

Not terribly interested in a poster... The other thing is then you'd have to babysit the poster during poster session(s)?

I'd suggest we say thanks for the offer, but that's alright... what do you think?

Thanks!  
Matt

---

**From:** Moyer, Carol  
**Sent:** Thursday, July 20, 2017 12:49 PM  
**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>  
**Subject:** FW: FW: PLiM abstract on harvesting

Matt,

I am a bit confused by the pronoun used in this email...

Are you interested in doing a poster instead?

Carol

---

**From:** KRIVANEK, Robert [<mailto:R.Krivanek@iaea.org>]  
**Sent:** Thursday, July 20, 2017 11:10 AM  
**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>  
**Subject:** [External\_Sender] FW: PLiM abstract on harvesting

You have just agreed that we will add this paper to poster session.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |

LTO Programme Manager

Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |

International Atomic Energy Agency | Vienna International Centre, PO Box 100, 1400 Vienna, Austria |

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**From:** KRIVANEK, Robert  
**Sent:** Thursday, 20 July 2017 16:10  
**To:** 'Carol.Moyer@nrc.gov' <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>  
**Subject:** FW: PLiM abstract on harvesting

Dear Carol,

We asked you to submit your synopsis through INDICO (see email below) but it did not happen. So we were not able to send your synopsis to programme committee for evaluation and it will not occur on the conference programme.

Sorry for that but there are currently 300 delegates and 150 synopsis, so we were not able to track each of them separately.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |  
LTO Programme Manager



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---

**From:** KRIVANEK, Robert  
**Sent:** Friday, 26 May 2017 08:55  
**To:** 'Carol.Moyer@nrc.gov' <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>  
**Cc:** KHAELSS, Martina <[M.Khaelss@iaea.org](mailto:M.Khaelss@iaea.org)>  
**Subject:** FW: PLiM abstract on harvesting

Dear Carol,

Thank you for your synopsis. We have opened INDICO system for this week, so please submit it through the system.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |

LTO Programme Manager

Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |

**International Atomic Energy Agency** | Vienna International Centre, PO Box 100, 1400 Vienna, Austria |

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---

**From:** [Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov) [<mailto:Carol.Moyer@nrc.gov>]

**Sent:** Friday, 26 May 2017 00:19

**To:** KRIVANEK, Robert <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>

**Cc:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>; Tregoning, Robert <[Robert.Tregoning@nrc.gov](mailto:Robert.Tregoning@nrc.gov)>; Frankl, Istvan <[Istvan.Frankl@nrc.gov](mailto:Istvan.Frankl@nrc.gov)>

**Subject:** PLiM abstract on harvesting

Dear Mr. Krivanek,

The US NRC would like to propose one more presentation for this autumn's PLiM conference, on harvesting of materials from operating and decommissioning power plants. I understand from Sherry Bernhoft that you already have an impressive number of abstracts, so I will understand if there is not room in the program for this one. Nevertheless, we would appreciate your consideration of this proposal.

Again, please let me know if you need any additional information. Many thanks,

Carol

---

*Carol E. Moyer*  
Sr. Materials Engineer  
Office of Nuclear Regulatory Research  
RES/DE/CMB  
[carol.moyer@nrc.gov](mailto:carol.moyer@nrc.gov)  
301-415-2153

---

**From:** KRIVANEK, Robert [<mailto:R.Krivanek@iaea.org>]

**Sent:** Tuesday, May 23, 2017 2:41 AM

**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>

**Subject:** [External\_Sender] RE: RE: CN246\_PLiM\_Abtract deadline extended to 19 May 2017

Dear Carol,

I will arrange it. Thank you.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |

LTO Programme Manager

Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |

International Atomic Energy Agency | Vienna International Centre, PO Box 100, 1400 Vienna, Austria |

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---

**From:** [Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov) [<mailto:Carol.Moyer@nrc.gov>]

**Sent:** Monday, 22 May 2017 20:44

**To:** KRIVANEK, Robert <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>

**Subject:** RE: RE: CN246\_PLiM\_Abstract deadline extended to 19 May 2017

Dear Mr. Krivanek,

Since the formal deadline for abstract submissions has passed, I am no longer able to access the Indico system through the PLiM website (<https://conferences.iaea.org/indico/event/134/>). My abstract and Form B are attached.

Are you able to work with these documents? Is there anything else that you need me to do at this time?

Thanks again for your patience and assistance,  
Carol

---

**From:** Moyer, Carol  
**Sent:** Monday, May 22, 2017 10:59 AM  
**To:** 'KRIVANEK, Robert' <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>  
**Cc:** Frankl, Istvan <[Istvan.Frankl@nrc.gov](mailto:Istvan.Frankl@nrc.gov)>  
**Subject:** RE: RE: CN246\_PLiM\_Abtract deadline extended to 19 May 2017

Dear Mr. Krivanek,

My abstract is attached to this message, for your info. Separately, I will submit it through the Indico system. Please let me know if you need any other information at this stage.

Thank you,  
Mrs. Carol Moyer

---

**From:** KRIVANEK, Robert [<mailto:R.Krivanek@iaea.org>]  
**Sent:** Monday, May 22, 2017 2:56 AM  
**To:** Moyer, Carol <[Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov)>  
**Cc:** Tregoning, Robert <[Robert.Tregoning@nrc.gov](mailto:Robert.Tregoning@nrc.gov)>  
**Subject:** [External\_Sender] RE: CN246\_PLiM\_Abtract deadline extended to 19 May 2017

Dear Mr Moyer,

It will be fine if you submit your abstracts this week.  
We are looking forward to see a strong NRC delegation in Lyon.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |  
LTO Programme Manager  
Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |  
International Atomic Energy Agency | Vienna International Centre, PO Box 100, 1400 Vienna, Austria |  
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---

**From:** [Carol.Moyer@nrc.gov](mailto:Carol.Moyer@nrc.gov) [<mailto:Carol.Moyer@nrc.gov>]

**Sent:** Friday, 19 May 2017 23:19

**To:** KRIVANEK, Robert <[R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)>

**Cc:** KANG, Ki-Sig <[K.S.Kang@iaea.org](mailto:K.S.Kang@iaea.org)>; Tregoning, Robert <[Robert.Tregoning@nrc.gov](mailto:Robert.Tregoning@nrc.gov)>

**Subject:** RE: CN246\_PLiM\_Abstract deadline extended to 19 May 2017

Dear Mr. Krivanek,

The U.S. NRC intends to submit several abstracts for consideration for the PLiM conference in October. We have a short delay in completing one of our abstracts. I will be submitting it early next week, and I hope that you still will be able to consider it for the conference.

Thank you,  
Carol Moyer

---

*Carol E. Moyer  
Sr. Materials Engineer  
U.S. Nuclear Regulatory Commission*



Office of Nuclear Regulatory Research  
MS: T-10A36  
Washington, DC 20555-0001  
[carol.moyer@nrc.gov](mailto:carol.moyer@nrc.gov)  
301-415-2153

---

**From:** [R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org) [<mailto:R.Krivanek@iaea.org>]  
**Sent:** Friday, April 21, 2017 8:44 AM  
**To:** [R.Krivanek@iaea.org](mailto:R.Krivanek@iaea.org)  
**Subject:** [External\_Sender] CN246\_PLiM\_Abstract deadline extended to 19 May 2017

Dear all,

Please be informed that we extended the abstract submission deadline to 19 May 2017 and updated the conference accordingly.

Best regards,

**Mr Robert KRIVANEK** | Senior Safety Officer |  
LTO Programme Manager  
Operational Safety Section | Division of Nuclear Installation Safety | Department of Nuclear Safety and Security |  
International Atomic Energy Agency | Vienna International Centre, PO Box 100, 1400 Vienna, Austria |  
Email: [r.krivanek@iaea.org](mailto:r.krivanek@iaea.org) | T: (+43-1) 2600-22018 | F: (+43-1) 2600-26007 |



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**From:** Hiser, Matthew  
**Sent:** Wed, 11 Oct 2017 13:05:10 +0000  
**To:** Hiser, Allen  
**Subject:** RE: FW: PLiM Discussions

Oh, I didn't realize all the topics of this meeting...

---

**From:** Hiser, Allen  
**Sent:** Wednesday, October 11, 2017 9:03 AM  
**To:** Hiser, Matthew <Matthew.Hiser@nrc.gov>  
**Subject:** RE: FW: PLiM Discussions

When I set it up the topics were the Moyer presentation and an IFRAM discussion, no harvesting at that point.

---

**From:** Hiser, Matthew  
**Sent:** Wednesday, October 11, 2017 8:36 AM  
**To:** Hiser, Allen <[Allen.Hiser@nrc.gov](mailto:Allen.Hiser@nrc.gov)>  
**Subject:** RE: FW: PLiM Discussions

Looks like there was a Hiser invited (silly Outlook!)

<< OLE Object: Picture (Device Independent Bitmap) >>

-----Original Appointment-----

**From:** Hiser, Matthew  
**Sent:** Wednesday, October 11, 2017 8:32 AM  
**To:** Hiser, Allen  
**Subject:** Accepted: FW: PLiM Discussions  
**When:** Thursday, October 12, 2017 8:00 AM-9:30 AM (UTC-05:00) Eastern Time (US & Canada).  
**Where:**

LOL, everything makes much more sense now!



**From:** Tregoning, Robert  
**Sent:** Thu, 24 Mar 2016 12:16:16 -0400  
**To:** Obodoako, Aloysius  
**Cc:** Hiser, Matthew  
**Subject:** RE: FYI: 03/21/16 Meeting Summary: Harvesting of Ex-plant Materials

Aloysius:

Couple of quick things I didn't see in summary.

1. Might want to mention that the components for operating reactor would be from replaced components.
2. Might want to summarize the discussion about the PNNL activities and how they're initially working on the identification of key degradation issues and while this is a needed first step, we want to minimize this work and prioritize the development of a harvesting plan with a template for capturing the information needed to capture the interest for components.
3. I think we agreed that the next meeting would entail looking at the PNNL "template" and getting feedback from the group.
4. I want to capture the notion that the group is also going to help identify harvesting needs and then prioritize the wish-list once it's developed and that the group is intended to be a steering committee for the work being done at PNNL.

Let me know if you want to discuss any of these notions.

Rob

Robert Tregoning  
Technical Advisor for Materials  
US Nuclear Regulatory Commission  
Two White Flint North, M/S T-10 A36  
11545 Rockville Pike  
Rockville, MD 20852-2738  
ph: 301-415-2324  
Blackberry: [REDACTED] (b)(6)  
fax: 301-415-6671

---

**From:** Obodoako, Aloysius  
**Sent:** Thursday, March 24, 2016 10:37 AM  
**To:** Hiser, Matthew <Matthew.Hiser@nrc.gov>; Hull, Amy <Amy.Hull@nrc.gov>; Oberson, Greg <Greg.Oberson@nrc.gov>; Collins, Jay <Jay.Collins@nrc.gov>; Litkett, Bernard <Bernard.Litkett@nrc.gov>; Tregoning, Robert <Robert.Tregoning@nrc.gov>; Poehler, Jeffrey <Jeffrey.Poehler@nrc.gov>  
**Subject:** FYI: 03/21/16 Meeting Summary: Harvesting of Ex-plant Materials

Hey Guys,

The attached is a high level summary of our discussion on Monday. I'm sending this for information purposes and so that we are aligned. Let me know if it is inconsistent with your understanding.

Thanks,

*Aloysius Obodoako, P.E.*  
Materials Engineer  
U.S. Nuclear Regulatory Commission  
RES/DE/CMB  
Office location: TWFN-10B31  
Office phone: (301)-415-2889  
Email: [Aloysius.Obodoako@nrc.gov](mailto:Aloysius.Obodoako@nrc.gov)

**From:** Obodoako, Aloysius  
**Sent:** Thu, 24 Mar 2016 10:58:44 -0400  
**To:** Hiser, Matthew  
**Subject:** RE: FYI: 03/21/16 Meeting Summary: Harvesting of Ex-plant Materials

No problem.

---

**From:** Hiser, Matthew  
**Sent:** Thursday, March 24, 2016 10:58 AM  
**To:** Obodoako, Aloysius <[Aloysius.Obodoako@nrc.gov](mailto:Aloysius.Obodoako@nrc.gov)>  
**Subject:** RE: FYI: 03/21/16 Meeting Summary: Harvesting of Ex-plant Materials

Hey Aloysius,

There is a chance I may be a few minutes late to the 12:00 meeting with PNNL, but please go ahead and start without me and I will be on ASAP.

Thanks!  
Matt

---

**From:** Obodoako, Aloysius  
**Sent:** Thursday, March 24, 2016 10:37 AM  
**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>; Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>; Oberson, Greg <[Greg.Oberson@nrc.gov](mailto:Greg.Oberson@nrc.gov)>; Collins, Jay <[Jay.Collins@nrc.gov](mailto:Jay.Collins@nrc.gov)>; Litkett, Bernard <[Bernard.Litkett@nrc.gov](mailto:Bernard.Litkett@nrc.gov)>; Tregoning, Robert <[Robert.Tregoning@nrc.gov](mailto:Robert.Tregoning@nrc.gov)>; Poehler, Jeffrey <[Jeffrey.Poehler@nrc.gov](mailto:Jeffrey.Poehler@nrc.gov)>  
**Subject:** FYI: 03/21/16 Meeting Summary: Harvesting of Ex-plant Materials

Hey Guys,

The attached is a high level summary of our discussion on Monday. I'm sending this for information purposes and so that we are aligned. Let me know if it is inconsistent with your understanding.

Thanks,

*Aloysius Obodoako, P.E.*  
Materials Engineer  
U.S. Nuclear Regulatory Commission  
RES/DE/CMB  
Office location: TWFN-10B31  
Office phone: (301)-415-2889  
Email: [Aloysius.Obodoako@nrc.gov](mailto:Aloysius.Obodoako@nrc.gov)

**From:** Hiser, Matthew  
**Sent:** Wed, 24 Jan 2018 14:56:30 +0000  
**To:** Frankl, Istvan  
**Cc:** Purtscher, Patrick  
**Subject:** RE: Gentle Reminder for Presentation Submissions to OGC/QTE

Hi Steve,

No, it is identical to the one from November 21, but that one was not shared with Brian and Chris (although it is nearly identical to the PLiM poster).

Here's the guidance I have: "Due date for obtaining division-level management approval of ePoster and Digital Presentation slides complete by 01/24/2018."

I think just an email response from division management is sufficient.

Thanks!  
Matt

***Matthew Hiser***

Materials Engineer

US Nuclear Regulatory Commission | Office of Nuclear Regulatory Research  
Division of Engineering | Corrosion and Metallurgy Branch

Phone: 301-415-2454 | Office: TWFN 10D62

[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)

---

**From:** Frankl, Istvan  
**Sent:** Wednesday, January 24, 2018 9:54 AM  
**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>  
**Cc:** Purtscher, Patrick <[Patrick.Purtscher@nrc.gov](mailto:Patrick.Purtscher@nrc.gov)>  
**Subject:** RE: Gentle Reminder for Presentation Submissions to OGC/QTE

Is this different than the file dated November 21, 2017?

Is there formal RIC requirement for documenting the management approval?

Thanks,

Steve

---

**From:** Hiser, Matthew  
**Sent:** Wednesday, January 24, 2018 9:45 AM  
**To:** Frankl, Istvan <[Istvan.Frankl@nrc.gov](mailto:Istvan.Frankl@nrc.gov)>  
**Cc:** Purtscher, Patrick <[Patrick.Purtscher@nrc.gov](mailto:Patrick.Purtscher@nrc.gov)>  
**Subject:** FW: Gentle Reminder for Presentation Submissions to OGC/QTE  
**Importance:** High

Hi Steve,



I have put the harvesting poster info into the RIC template. This is largely the same information that was used for the PLiM meeting late last year. Please review and send on to division management for approval if you approve.

Thanks!  
Matt

***Matthew Hiser***

Materials Engineer  
US Nuclear Regulatory Commission | Office of Nuclear Regulatory Research  
Division of Engineering | Corrosion and Metallurgy Branch  
Phone: 301-415-2454 | Office: TWFN 10D62  
[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)

---

**From:** RICMST Resource

**Sent:** Wednesday, January 24, 2018 8:09 AM

**To:** Bernardo, Robert <[Robert.Bernardo@nrc.gov](mailto:Robert.Bernardo@nrc.gov)>; Hall, Victor <[Victor.Hall@nrc.gov](mailto:Victor.Hall@nrc.gov)>; Wilson, Joshua <[Joshua.Wilson@nrc.gov](mailto:Joshua.Wilson@nrc.gov)>; Jones, Heather <[Heather.Jones@nrc.gov](mailto:Heather.Jones@nrc.gov)>; Bridge, Joanna <[Joanna.Bridge@nrc.gov](mailto:Joanna.Bridge@nrc.gov)>; Mendiola, Mary <[Mary.Mendiola@nrc.gov](mailto:Mary.Mendiola@nrc.gov)>; Zuberi, Sardar <[Sardar.Zuberi@nrc.gov](mailto:Sardar.Zuberi@nrc.gov)>; Dembek, Stephen <[Stephen.Dembek@nrc.gov](mailto:Stephen.Dembek@nrc.gov)>; Yadav, Priya <[Priya.Yadav@nrc.gov](mailto:Priya.Yadav@nrc.gov)>; Gifford, Ian <[Ian.Gifford@nrc.gov](mailto:Ian.Gifford@nrc.gov)>; Smith, Todd <[Todd.Smith@nrc.gov](mailto:Todd.Smith@nrc.gov)>; Orf, Tracy <[Tracy.Orf@nrc.gov](mailto:Tracy.Orf@nrc.gov)>; Cruz, Holly <[Holly.Cruz@nrc.gov](mailto:Holly.Cruz@nrc.gov)>; Morey, Dennis <[Dennis.Morey@nrc.gov](mailto:Dennis.Morey@nrc.gov)>; Oberson, Greg <[Greg.Oberson@nrc.gov](mailto:Greg.Oberson@nrc.gov)>; Hull, Amy <[Amy.Hull@nrc.gov](mailto:Amy.Hull@nrc.gov)>; Savoy, Joanne <[Joanne.Savoy@nrc.gov](mailto:Joanne.Savoy@nrc.gov)>; Ralph, Melissa <[Melissa.Ralph@nrc.gov](mailto:Melissa.Ralph@nrc.gov)>; King, Shannon <[Shannon.King@nrc.gov](mailto:Shannon.King@nrc.gov)>; Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>; Armstrong, Kenneth <[Kenneth.Armstrong@nrc.gov](mailto:Kenneth.Armstrong@nrc.gov)>

**Cc:** RICMST Resource <[RICMST.Resource@nrc.gov](mailto:RICMST.Resource@nrc.gov)>; Kipfer, Lorna <[Lorna.Kipfer@nrc.gov](mailto:Lorna.Kipfer@nrc.gov)>

**Subject:** Gentle Reminder for Presentation Submissions to OGC/QTE

**Importance:** High

Good Morning ePoster and Digital Presenters,

This is a gentle reminder to do the following:

- Obtain managerial approval for your ePoster and Digital Presentation
- If your poster has been selected for OGC Review please submit and cc [RICMST.Resource@nrc.gov](mailto:RICMST.Resource@nrc.gov)
- Submit your poster to QTE for Level 1 review (note all ePosters and Digital Presentations should be submitted to QTE for final reviews)

Refer to ePoster and Digital Presentation Flowchart for further guidance (also attached). It is important that you adhere to the due dates as close as possible. If you are unable to meet this deadline please contact me as soon as possible via email [Brenett.warren@nrc.gov](mailto:Brenett.warren@nrc.gov) or call me at 415-3114.

Once again thank you,

*Brenett (Bren) U. Warren*

Program Specialist  
Office of Nuclear Reactor Regulation  
NRR/DMPs/RISB  
Location: O13D5  
301-415-3114  
[Brenett.Warren@nrc.gov](mailto:Brenett.Warren@nrc.gov)



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**From:** Isakovic, Nadja  
**Sent:** Tue, 14 Feb 2017 11:45:43 -0500  
**To:** Hiser, Matthew  
**Subject:** RE: GoToWebinar

GoToWebinar license

[Res\\_gtm3.resource@nrc.gov](mailto:Res_gtm3.resource@nrc.gov) - Password: (b)(6)

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**From:** Isakovic, Nadja  
**Sent:** Tuesday, February 14, 2017 11:44 AM  
**To:** Hiser, Matthew <Matthew.Hiser@nrc.gov>  
**Subject:** GoToWebinar

Please register for Harvesting Workshop on Mar 7, 2017 7:00 AM EST at:

<https://attendee.gotowebinar.com/register/6076202901971284226>

This webinar is for parties interested in the ex-plant materials harvesting workshop hosted at NRC HQ on March 7-8, 2017.

After registering, you will receive a confirmation email containing information about joining the webinar.

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Webinars Made Easy®



Nadja Isakovic,  
Administrative Support Specialist  
RES/PMDA  
301-415-1999  
[Nadja.Isakovic@nrc.gov](mailto:Nadja.Isakovic@nrc.gov)

**From:** Hiser, Matthew  
**Sent:** Fri, 25 Aug 2017 14:13:04 +0000  
**To:** Purtscher, Patrick  
**Cc:** Tregoning, Robert  
**Subject:** RE: Harvest TLR comments  
**Attachments:** Harvesting TLR DRAFT PTP MAH comments 8-24-17.docx

Note to requester: The attachment is immediately following, which was also provided as a stand-alone record in the 4th interim release. Consistent redactions are applied.

Hi Pat,

I've added my comments to the version you sent me with your comments. I had a few edits and comments; nothing too major or difficult to implement I don't think. Feel free to send back to PNNL.

Thanks!  
Matt

***Matthew Hiser***

Materials Engineer  
US Nuclear Regulatory Commission | Office of Nuclear Regulatory Research  
Division of Engineering | Corrosion and Metallurgy Branch  
Phone: 301-415-2454 | Office: TWFN 10D62  
[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)

---

**From:** Purtscher, Patrick  
**Sent:** Wednesday, August 23, 2017 3:40 PM  
**To:** Hiser, Matthew  
**Subject:** Harvest TLR comments

Good afternoon,

I had very few comments, let me know when you have completed reviewing the draft.

Pat



PNNL-XXXXX



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

**July 2017**

P Ramuhalli  
R Devanathan  
RM Meyer

SW Glass  
K Knobbs



Prepared for the U.S. Department of Energy  
under Contract DE-AC05-76RL01830

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PNNL-XXXXX

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

P Ramuhalli  
R Devanathan  
RM Meyer

SW Glass  
K Knobbs

July 2017

Prepared for  
the U.S. Department of Energy  
under Contract DE-AC05-76RL01830

Pacific Northwest National Laboratory  
Richland, Washington 99352

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**ENERGY**

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**[www.pnnl.gov](http://www.pnnl.gov)**

**From:** Hiser, Matthew  
**Sent:** Fri, 18 May 2018 12:42:33 +0000  
**To:** Purtscher, Patrick  
**Cc:** Audrain, Margaret  
**Subject:** RE: Harvested Materials Template

Hi Pat,

Just following up on this – I'd like to send something to Battelle today if possible. Do you have our latest and greatest template from ANL?

Thanks!  
Matt

---

**From:** Hiser, Matthew  
**Sent:** Tuesday, May 15, 2018 9:12 AM  
**To:** Purtscher, Patrick <Patrick.Purtscher@nrc.gov>  
**Cc:** Audrain, Margaret <Margaret.Audrain@nrc.gov>  
**Subject:** Harvested Materials Template

Hi Pat,

This is the latest version of the harvested materials input from ANL that I have. Do you have a newer version? I'm looking for the best template to feed to Battelle for them to input their materials...

Thanks!  
Matt

**From:** Hiser, Matthew  
**Sent:** Mon, 20 Aug 2018 11:45:44 +0000  
**To:** Sircar, Madhumita  
**Subject:** RE: Harvesting

Hi Mita,

Oh that language is from when I sent this last week. The new meeting time is tomorrow morning...

Thanks!  
Matt

***Matthew Hiser***

Materials Engineer  
US Nuclear Regulatory Commission | Office of Nuclear Regulatory Research  
Division of Engineering | Corrosion and Metallurgy Branch  
Phone: 301-415-2454 | Office: TWFN 10D62  
[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)

---

**From:** Sircar, Madhumita  
**Sent:** Monday, August 20, 2018 7:44 AM  
**To:** Hiser, Matthew <Matthew.Hiser@nrc.gov>  
**Subject:** RE: Harvesting

Hi Matt,  
I will be on travel next week.  
Thanks,  
*Mita*

-----Original Appointment-----

**From:** Hiser, Matthew  
**Sent:** Monday, August 20, 2018 6:49 AM  
**To:** Miller, Kenneth A; Sircar, Madhumita  
**Subject:** Harvesting  
**When:** Tuesday, August 21, 2018 9:00 AM-9:30 AM (UTC-05:00) Eastern Time (US & Canada).  
**Where:** HQ-TWFN-10A73-8p

Hi Kenn and Mita,

Can we meet early next week to discuss the harvesting prioritization and getting your input for electrical and concrete?

Thanks!  
Matt

<< Message: FW: Materials Harvesting >>

**From:** Moyer, Carol  
**Sent:** Thu, 23 Feb 2017 17:08:35 -0500  
**To:** Hiser, Matthew  
**Subject:** RE: Harvesting

Matt,

Thanks very much for sharing this info. I see a few names that I recognize here.

If I can help with this, or provide any link to the SRP program that would be beneficial, please let me know. I am not planning to take up a seat in the workshop, but I probably will try to participate in parts of it through the webinar.

-Carol

---

**From:** Hiser, Matthew  
**Sent:** Friday, February 17, 2017 8:08 AM  
**To:** Moyer, Carol <Carol.Moyer@nrc.gov>  
**Subject:** RE: Harvesting

Hi Carol,

Here's my current list of outside attendees at the workshop. There may be one or two additional, but that's all.

I also attached the list of speakers and topics for each presentation. Sessions 1-3 will be on March 7 and Sessions 4 and 5 on March 8. The agenda is not quite final as we're waiting to see on one last potential talk.

Thanks!  
Matt

	Name	Organization	Email
Japan	Taku Arai	CRIEPI	<a href="mailto:arait@criepi.denken.or.jp">arait@criepi.denken.or.jp</a>
	Sadao Higuchi	CRIEPI	<a href="mailto:higuchi@criepi.denken.or.jp">higuchi@criepi.denken.or.jp</a>
	Kazunobu Sakamoto	JNRA	<a href="mailto:kazunobu_sakamoto@nsr.go.jp">kazunobu_sakamoto@nsr.go.jp</a>
	Yasuhiro Chimi	JAEA	<a href="mailto:chimi.yasuhiro@jaea.go.jp">chimi.yasuhiro@jaea.go.jp</a>
Europe	Uwe Jendrich	GRS	<a href="mailto:Uwe.Jendrich@grs.de">Uwe.Jendrich@grs.de</a>
	Rachid Chaouadi	SCK-CEN	<a href="mailto:rachid.chaouadi@sckcen.be">rachid.chaouadi@sckcen.be</a>
Canada	Daniel Tello	CNSC	<a href="mailto:daniel.tello@canada.ca">daniel.tello@canada.ca</a>
	Désiré Ndomba	CNSC	<a href="mailto:desire.ndomba@canada.ca">desire.ndomba@canada.ca</a>
	Karen Huynh	AECL	<a href="mailto:khuynh@aecl.ca">khuynh@aecl.ca</a>

<b>US industry</b>	Gerry van Noordennen	Energy Solutions	<a href="mailto:gpvannoordennen@energysolutions.com">gpvannoordennen@energysolutions.com</a>
	Bill Zipp	Dominion	<a href="mailto:william.f.zipp@dom.com">william.f.zipp@dom.com</a>
	Arzu Alpan	Westinghouse	<a href="mailto:alpanfa@westinghouse.com">alpanfa@westinghouse.com</a>
<b>EPRI</b>	Sherry Bernhoft	EPRI	<a href="mailto:sbernhoft@epri.com">sbernhoft@epri.com</a>
	Robin Dyle	EPRI	<a href="mailto:rdyle@epri.com">rdyle@epri.com</a>
	Jean Smith	EPRI	<a href="mailto:jmsmith@epri.com">jmsmith@epri.com</a>
	Al Ahluwalia	EPRI	<a href="mailto:kahluwal@epri.com">kahluwal@epri.com</a>
<b>DOE</b>	Tom Rosseel	ORNL	<a href="mailto:rosseeltm@ornl.gov">rosseeltm@ornl.gov</a>
	Rich Reister	DOE	<a href="mailto:Richard.Reister@nuclear.energy.gov">Richard.Reister@nuclear.energy.gov</a>
	Keith Leonard	ORNL	<a href="mailto:leonardk@ornl.gov">leonardk@ornl.gov</a>
	Mikhail A. Sokolov	ORNL	<a href="mailto:sokolovm@ornl.gov">sokolovm@ornl.gov</a>
	Pradeep Ramuhalli	PNNL	<a href="mailto:Pradeep.Ramuhalli@pnnl.gov">Pradeep.Ramuhalli@pnnl.gov</a>

---

**From:** Moyer, Carol  
**Sent:** Thursday, February 16, 2017 3:38 PM  
**To:** Hiser, Matthew <[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)>  
**Subject:** Harvesting

Hi Matt,

Would you share with me the agenda and guest list for the Harvesting Workshop?

Thanks,  
 Carol

**From:** Hiser, Matthew  
**Sent:** Mon, 20 Aug 2018 11:11:05 +0000  
**To:** Miller, Kenneth A  
**Subject:** RE: Harvesting

Thanks Kenn! I rescheduled for tomorrow morning...

***Matthew Hiser***

Materials Engineer

US Nuclear Regulatory Commission | Office of Nuclear Regulatory Research  
Division of Engineering | Corrosion and Metallurgy Branch

Phone: 301-415-2454 | Office: TWFN 10D62

[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)

-----Original Appointment-----

**From:** Miller, Kenneth A

**Sent:** Monday, August 20, 2018 5:41 AM

**To:** Hiser, Matthew

**Subject:** Tentative: Harvesting

**When:** Monday, August 20, 2018 3:00 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).

**Where:** HQ-TWFN-10A73-8p

Matt,

How about 9a, 4p, 1-3p Tuesday?

I have an

[REDACTED]

(b)(6)

Kenn

**From:** Hiser, Matthew  
**Sent:** Mon, 28 Aug 2017 14:24:42 +0000  
**To:** Tregoning, Robert  
**Cc:** Purtscher, Patrick; Audrain, Margaret  
**Subject:** RE: Harvesting  
**Attachments:** Harvesting Needs Prioritization.xlsx

Note to requester: Attachment is immediately following. The box with the red X in the first email is the Excel attachment (Excel icon and the file name) imbedded into the body of the email.



Hi Rob,

This is my first stab at compiling the harvesting needs and trying to do a systematic prioritization. I feel less comfortable / qualified to do so for the concrete and electrical (hence the increasing blanks in those areas). I'll keep noodling on this some, but I think I'm at the point where some input from others would be helpful.

Thanks!  
Matt

***Matthew Hiser***

Materials Engineer

US Nuclear Regulatory Commission | Office of Nuclear Regulatory Research

Division of Engineering | Corrosion and Metallurgy Branch

Phone: 301-415-2454 | Office: TWFN 10D62

[Matthew.Hiser@nrc.gov](mailto:Matthew.Hiser@nrc.gov)

-----Original Appointment-----

**From:** Hiser, Matthew

**Sent:** Thursday, August 17, 2017 10:34 AM

**To:** Hiser, Matthew; Purtscher, Patrick; Tregoning, Robert; Audrain, Margaret

**Subject:** Harvesting

**When:** Monday, August 21, 2017 1:30 PM-2:30 PM (UTC-05:00) Eastern Time (US & Canada).

**Where:** HQ-TWFN-10A73-8p

We'd like to discuss the current efforts on ex-plant harvesting and whether Meg may be interested in getting involved.

Thanks!  
Matt



[illegible]

Note to requester: Attachment is immediately following.

**From:** Hiser, Matthew  
**Sent:** Fri, 17 Feb 2017 13:07:44 +0000  
**To:** Moyer, Carol  
**Subject:** RE: Harvesting  
**Attachments:** Workshop Speakers & Titles.xlsx

Hi Carol,

Here's my current list of outside attendees at the workshop. There may be one or two additional, but that's all.

I also attached the list of speakers and topics for each presentation. Sessions 1-3 will be on March 7 and Sessions 4 and 5 on March 8. The agenda is not quite final as we're waiting to see on one last potential talk.

Thanks!  
 Matt

	Name	Organization	Email
<b>Japan</b>	Taku Arai	CRIEPI	<a href="mailto:arait@criepi.denken.or.jp">arait@criepi.denken.or.jp</a>
	Sadao Higuchi	CRIEPI	<a href="mailto:higuchi@criepi.denken.or.jp">higuchi@criepi.denken.or.jp</a>
	Kazunobu Sakamoto	JNRA	<a href="mailto:kazunobu_sakamoto@nsr.go.jp">kazunobu_sakamoto@nsr.go.jp</a>
	Yasuhiro Chimi	JAEA	<a href="mailto:chimi.yasuhiro@jaea.go.jp">chimi.yasuhiro@jaea.go.jp</a>
<b>Europe</b>	Uwe Jendrich	GRS	<a href="mailto:Uwe.Jendrich@grs.de">Uwe.Jendrich@grs.de</a>
	Rachid Chaouadi	SCK-CEN	<a href="mailto:rachid.chaouadi@sckcen.be">rachid.chaouadi@sckcen.be</a>
<b>Canada</b>	Daniel Tello	CNSC	<a href="mailto:daniel.tello@canada.ca">daniel.tello@canada.ca</a>
	Désiré Ndomba	CNSC	<a href="mailto:desire.ndomba@canada.ca">desire.ndomba@canada.ca</a>
	Karen Huynh	AECL	<a href="mailto:khuynh@aecl.ca">khuynh@aecl.ca</a>
<b>US industry</b>	Gerry van Noordennen	Energy Solutions	<a href="mailto:gpvannoordennen@energysolutions.com">gpvannoordennen@energysolutions.com</a>
	Bill Zipp	Dominion	<a href="mailto:william.f.zipp@dom.com">william.f.zipp@dom.com</a>
	Arzu Alban	Westinghouse	<a href="mailto:alpanfa@westinghouse.com">alpanfa@westinghouse.com</a>
<b>EPRI</b>	Sherry Bernhoft	EPRI	<a href="mailto:sbernhof@epri.com">sbernhof@epri.com</a>
	Robin Dyle	EPRI	<a href="mailto:rdyle@epri.com">rdyle@epri.com</a>
	Jean Smith	EPRI	<a href="mailto:jmsmith@epri.com">jmsmith@epri.com</a>
	Al Ahluwalia	EPRI	<a href="mailto:kahluwal@epri.com">kahluwal@epri.com</a>
<b>DOE</b>	Tom Rosseel	ORNL	<a href="mailto:rosseeltm@ornl.gov">rosseeltm@ornl.gov</a>
	Rich Reister	DOE	<a href="mailto:Richard.Reister@nuclear.energy.gov">Richard.Reister@nuclear.energy.gov</a>
	Keith Leonard	ORNL	<a href="mailto:leonardk@ornl.gov">leonardk@ornl.gov</a>

	Mikhail A. Sokolov	ORNL	<a href="mailto:sokolovm@ornl.gov">sokolovm@ornl.gov</a>
	Pradeep Ramuhalli	PNNL	<a href="mailto:Pradeep.Ramuhalli@pnnl.gov">Pradeep.Ramuhalli@pnnl.gov</a>

---

**From:** Moyer, Carol

**Sent:** Thursday, February 16, 2017 3:38 PM

**To:** Hiser, Matthew <Matthew.Hiser@nrc.gov>

**Subject:** Harvesting

Hi Matt,

Would you share with me the agenda and guest list for the Harvesting Workshop?

Thanks,  
Carol

Session	Topic	Organization	Speaker	Presentation Title
1	Why our organization is interested in harvesting	EPRI	Sherry Bernhoft	
		DOE	Rich Reister	
		NRC	Robert Tregoning	
		GRS	Uwe Jendrich	
		CRIEPI	Taku Arai	
2	Perspective on detailed data needs from harvesting	PNNL (for NRC)	Pradeep Ramuhalli	Data Needs Best Addressed By Harvesting
		DOE	Keith Leonard	
		NRC	Matthew Hiser	High-Priority Data Needs for Harvesting
		SCK-CEN	Rachid Chaouadi	Review of past RPV sampling test programs and perspective for long term operation
		Westinghouse	Arzu Alban	Importance of Harvesting to Evaluate Radiation Effects on Concrete Properties
3		NRC	Matthew Hiser	Sources of Materials: Past NRC Harvesting and U.S. Decommissioning Plants
	Available materials from operating reactors and past harvesting programs	EPRI	Al Ahluwalia	
	Available materials at DOE labs from past harvesting programs	DOE	Tom Rosseel	
	Upcoming U.S. decommissioning plans	Energy Solutions	Gerry van Noordennen	
	International Harvesting Opportunities	GRS	Uwe Jendrich	
		Westinghouse	Arzu Alban	Potential Harvesting of Concrete from Mihama Unit 1
4	Perspective on Harvesting Lessons Learned / Prior Experience	CNSC	Dan Tello	
		EPRI	Jean Smith	
		DOE	Tom Rosseel	
		NRC	Matthew Hiser	NRC Perspective on Harvesting Experience and Lessons Learned
	Decommissioning company perspective on harvesting	Energy Solutions	Gerry van Noordennen	
	Utility perspective on harvesting and decommissioning	Dominion	Bill Zipp	
5	Perspective on future harvesting planning	PNNL (for NRC)	Pradeep Ramuhalli	Technical Information Needed for Informed Harvesting Decisions
		EPRI	Sherry Bernhoft	
		DOE	Rich Reister	
		NRC	Robert Tregoning	

**From:** Purtscher, Patrick  
**Sent:** Wed, 1 Feb 2017 06:22:58 -0500  
**To:** Ramuhalli, Pradeep  
**Cc:** Hiser, Matthew  
**Subject:** RE: Harvesting document update

Thank you.

---

**From:** Ramuhalli, Pradeep [mailto:Pradeep.Ramuhalli@pnnl.gov]  
**Sent:** Wednesday, February 01, 2017 1:10 AM  
**To:** Purtscher, Patrick <Patrick.Purtscher@nrc.gov>  
**Cc:** Hiser, Matthew <Matthew.Hiser@nrc.gov>  
**Subject:** [External\_Sender] Harvesting document update

Patrick,

Attached is an updated draft of the harvesting document. Please note – this is a draft. As always, feedback/suggested edits are welcome. I am finishing up the draft slides and will have them out later tomorrow.

With best regards,

Pradeep

---

Pradeep Ramuhalli, PhD  
Senior Research Scientist,  
Applied Physics Group  
Pacific Northwest National Laboratory  
902 Battelle Blvd.  
P.O.Box 999, MSIN K5-26  
Richland, WA 99352  
Tel: 509-375-2763  
Email: [pradeep.ramuhalli@pnnl.gov](mailto:pradeep.ramuhalli@pnnl.gov)  
<http://www.pnnl.gov>

Note to requester: Attachment is immediately following.

**From:** Hiser, Matthew  
**Sent:** Fri, 29 May 2015 13:39:26 +0000  
**To:** Hull, Amy;Frankl, Istvan  
**Cc:** Tregoning, Robert  
**Subject:** RE: Harvesting Efforts June NRC-Industry materials mtg 5-28-15 mah.abh.pptx  
**Attachments:** Harvesting Efforts June NRC-Industry materials mtg 5-29-15.pptx

Hi Rob, Steve, Amy,

I have made the changes in accordance with Kathy's comments as relayed by Steve in the attached PP. One final tweak Amy and I will try to make on Monday is to Slide 15 – if we can clean up the source slide from DOE, just so the information comes through clearly.

Thanks!  
Matt

---

**From:** Hull, Amy  
**Sent:** Thursday, May 28, 2015 10:03 AM  
**To:** Frankl, Istvan  
**Cc:** Tregoning, Robert; Hiser, Matthew  
**Subject:** Harvesting Efforts June NRC-Industry materials mtg 5-28-15 mah.abh.pptx

We have made changes suggested. I will drop the 390 form off for you now.

# Strategic Approach for Obtaining Material and Component Aging Information

**Matthew Hiser**

**Amy Hull**

**U.S. NRC RES/DE/CMB**

Industry/NRC Materials Programs Technical Information Exchange Meeting  
Nuclear Regulatory Commission Headquarters  
June 2 - 4, 2015



# Outline

- Purpose
- Background
- Harvesting Experience
- Approach to Strategic Harvesting
- Engagement with Other Stakeholders



# Purpose

- Create a framework for a strategic approach to harvesting ex-plant materials to support regulatory needs associated with SLR
  - Ex-plant materials offer unique environmental exposure that cannot be entirely replicated by laboratory testing with fresh materials
- Align high priority data needs identified in SLR/LTO activities with harvesting opportunities from decommissioning plants

# Background

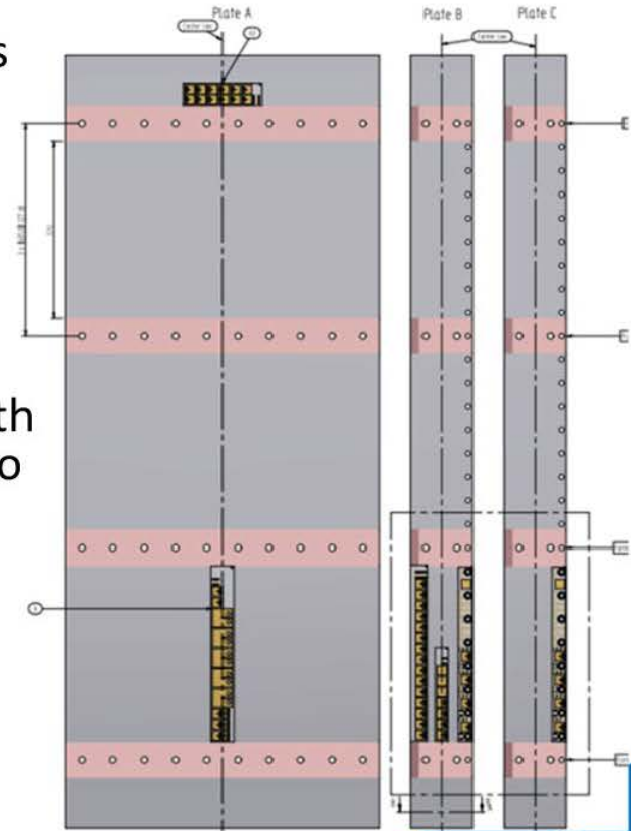
- To date, harvesting opportunities have been limited due to few decommissioning plants
  - Zion in U.S., Zorita in Spain
- However, several U.S. plants have already shut down or are planning to do so in the near future
  - Kewaunee, SONGS, Crystal River, Vermont Yankee, Oyster Creek
- This provides a unique opportunity to plan harvesting to address the highest priority technical and regulatory issues

# Harvesting Experience

- Past harvesting efforts have generally involved reactive decision-making
  - Limited opportunities to acquire ex-plant materials
  - Limited strategic planning for harvesting
- Harvesting projects with NRC involvement:
  - Reactors internal materials from Zorita
  - Concrete from Zorita
  - Neutron absorber material from Zion
  - Cables from Zion and Crystal River

# Zorita Internals Research Project (ZIRP)

- **Materials Harvested:**
  - Baffle plate and core barrel weld materials
- **Scope:**
  - Mechanical testing (tensile, CGR, FT)
  - Microstructural characterization (void swelling)
- **Purpose:**
  - High-fluence (up to 50 dpa) IAD effects with representative LWR exposure conditions to
  - Support regulatory decision-making associated with SLR
- **Timeline:**
  - Initial discussions in 2006, harvesting in 2013, testing ongoing through 2016
- **Coordination:**
  - EPRI, international consortium, Studsvik, Halden



# ZIRP Timeline

Task	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Project Inception	★									
Feasibility Study										
Project Planning Cutting Plans Equipment Design & Manufacturing On-site Preparations										
Material Extraction On-site Logistics Shipping										
Radiation and Temperature Analyses										
Material Inspection, Inventory, Documentation										
Materials Testing										
Reporting										★



# Neutron Absorbers from Zion



- **Materials Harvested:**
  - Select Boral® NAM panels from Regions 1 and 2 of the Zion SFP
- **Scope:**
  - Visual and microstructural examinations (incl. areal density)
  - Corrosion testing
- **Purpose:**
  - Identify degradation mechanisms and estimate degradation rate
  - Confirm results of in-situ areal density measurements
  - Provide confirmatory data to support regulatory decision-making
- **Timeline:**
  - Initial discussions in 2014, harvesting in 2015, testing in 2015-2016
- **Coordination:**
  - EPRI, ZionSolutions, SRNL

# Concrete from Zorita (Plan)



- **Materials Harvested:**
  - Concrete from structures that are in close proximity to RPV
- **Scope:**
  - Mechanical testing (compressive, tensile, modulus of elasticity)
  - Microstructural characterization
  - Physical change
- **Purpose:**
  - High fluence in combination with temperature and humidity that are representative of LWR environmental effects on structural and shielding performance
  - Supports regulatory decision-making associated with SLR
- **Timeline:**
  - Initial discussions in 2014, harvesting in 2015, testing 2016-2018
- **Coordination:**
  - NRC , ENRESA and CSN

# Cables: Zion and Crystal River



- **Materials Harvested:**
  - Low and Medium Voltage Cables
- **Scope:**
  - Condition monitoring to assess cable performance under normal operating conditions (accelerated aging) and accident conditions
- **Purpose:**
  - Cable degradation due to normal operating environment and accident conditions
  - Supports regulatory decision-making associated with SLR
- **Timeline:**
  - Initial discussions in 2012; Cable samples harvested from Zion in 2013
  - Plan is to harvest additional samples from Crystal River and Zion in 2015
  - Testing expected to be completed in 2017
- **Coordination:**
  - ORNL, Zion Solutions, NIST, EPRI



## Approach: Integrated Aging Degradation Need/Resource Interrogatory Tool



- Utilize various sources of technical information with respect to anticipated degradation in NPPs out to 80 years of operation
  - NRC, DOE, EPRI, IAEA
- Identify high-priority data needs that could be addressed through harvesting ex-plant materials
  - Focus on identifying characteristics of important systems, structures, and components (SSCs) for harvesting
- Evaluate what relevant ex-plant material from decommissioned reactors is projected to be available for potential harvesting given previously identified needs

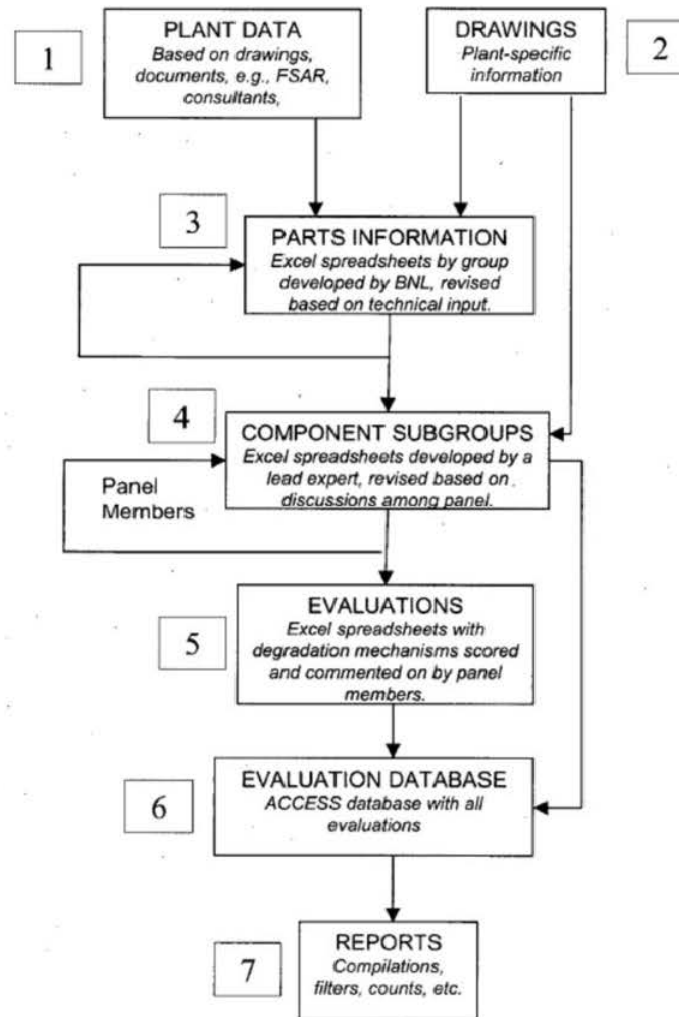
# Sources: PMDA & EMDA



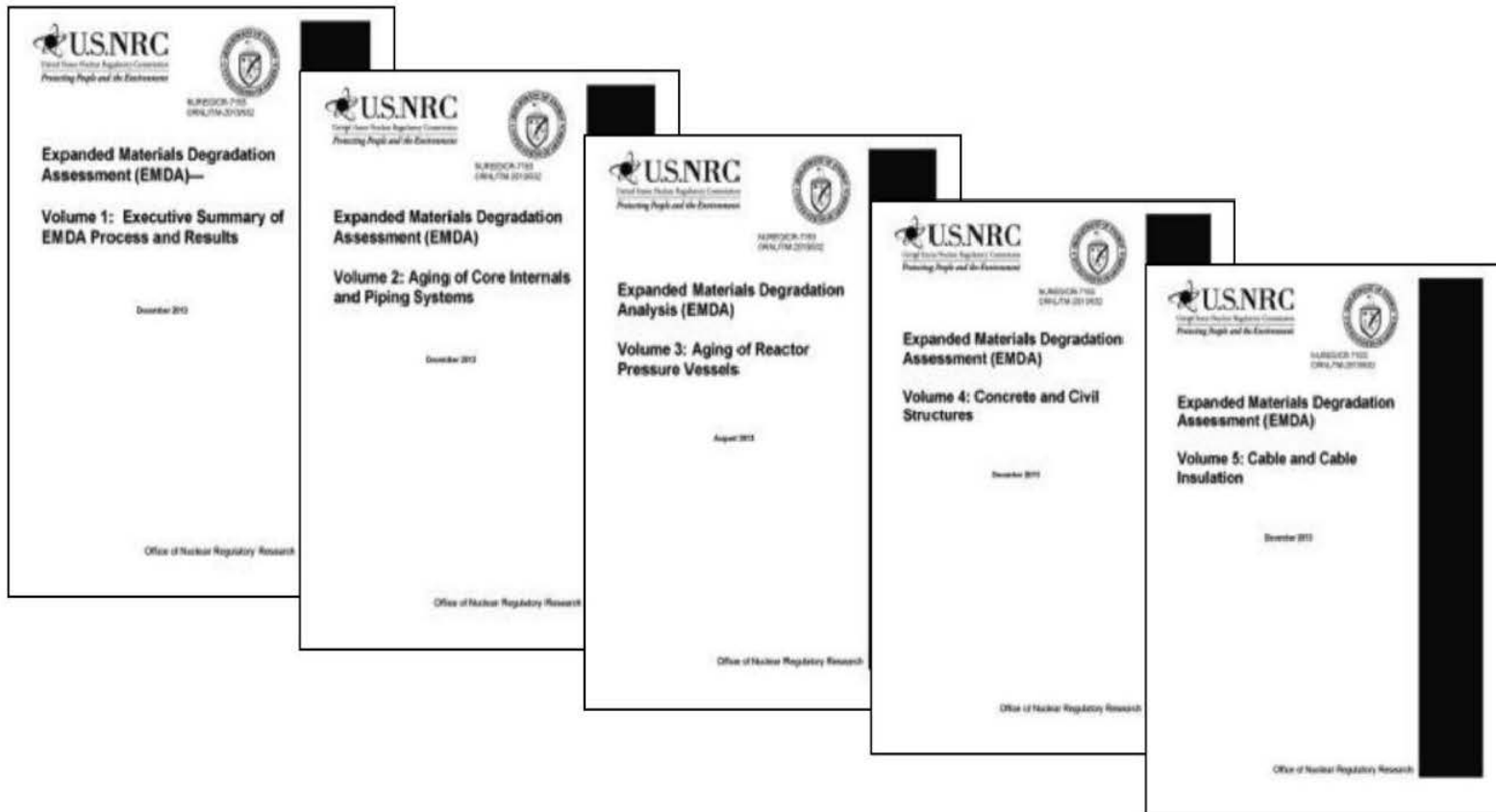
## *How does one try to predict the future?*

- Experts were tasked with
  - Listing passive reactor components
  - Reviewing relevant degradation mechanisms
  - Determining the degree to which the components were susceptible to these mechanisms
  - Determining confidence level in their predictions
- The PMDA panel evaluated 3863 components (2203 for PWRs, 1603 for BWRs) for their susceptibility to 16 degradation mechanisms.
  - Documented in NUREG/CR-6923
- The EMDA panels investigated issues of reactor aging beyond 60 years to identify possible knowledge gaps, and provided an expansion of scope and time
  - Documented in NUREG/CR-7153

# Sources: PMDA & EMDA



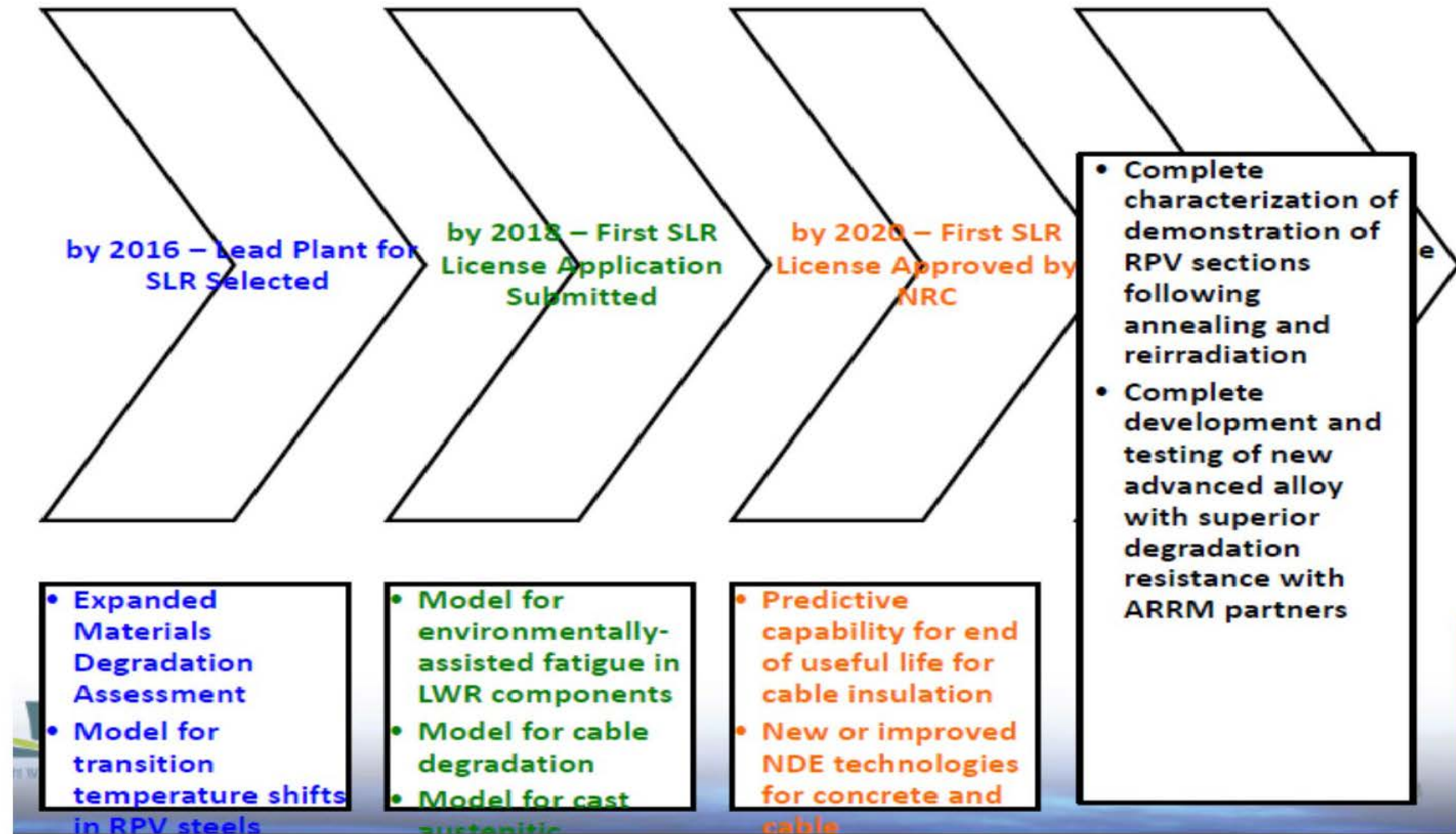
# EMDA (NUREG/CR-7153)



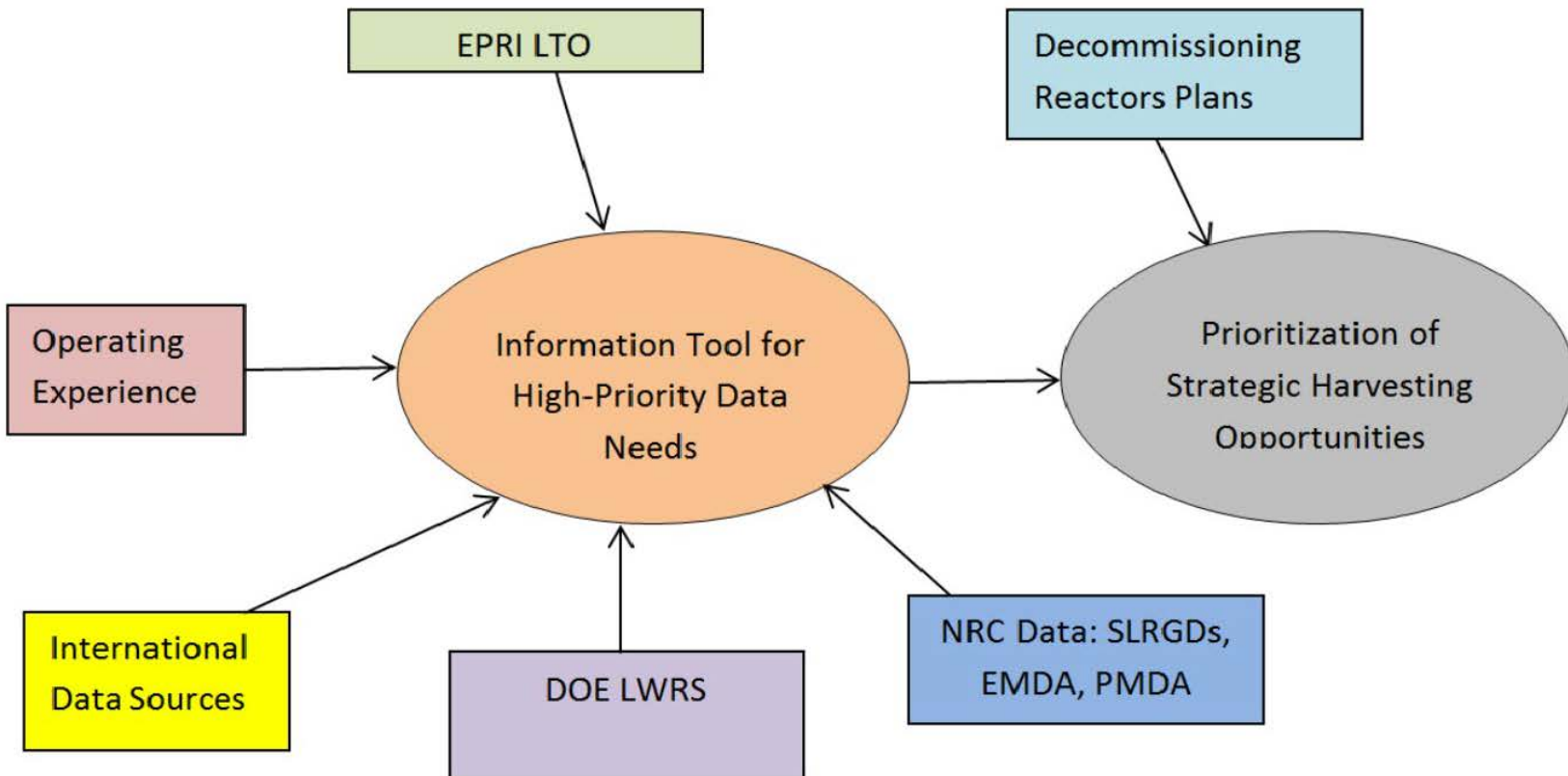


# Source: DOE LWRS Program

(J. Busby, Overview Presentation to NESCC May 12, 2015)



# The Vision: Integrated Aging Degradation Need/Resource Interrogatory Tool

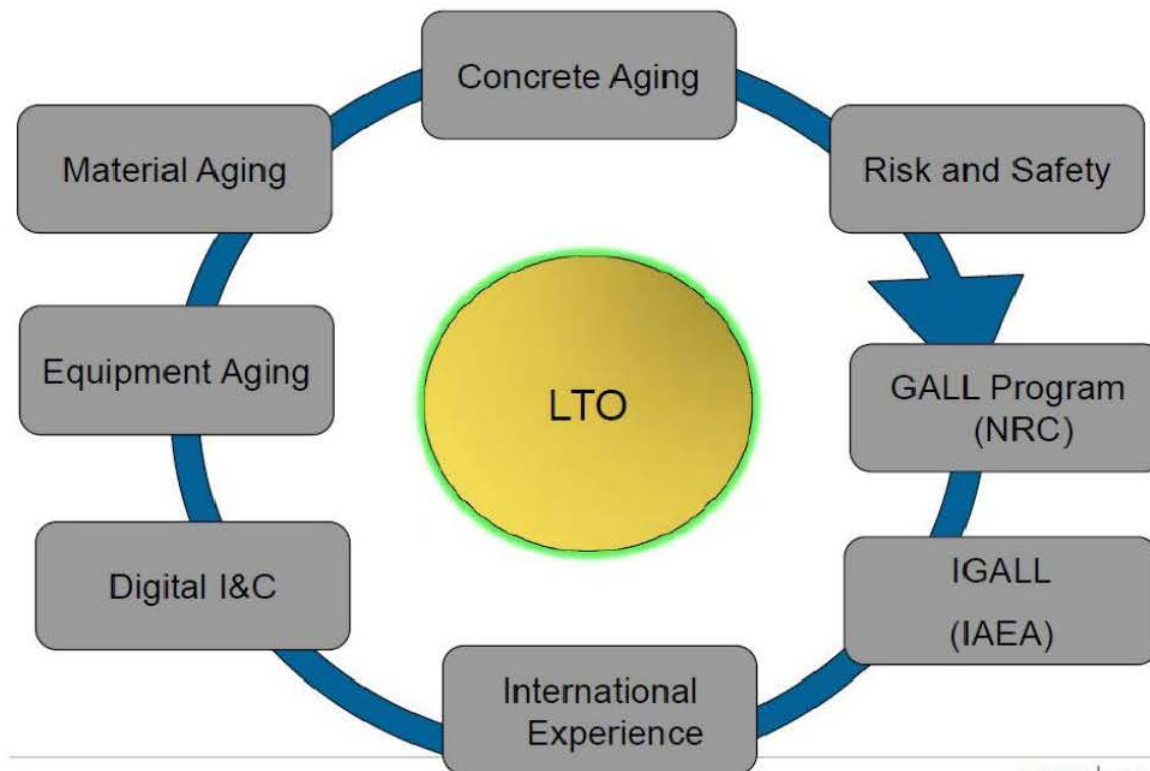


# Implementation

- What might the output of this activity look like?
  - For example, the review may show there is value in acquiring CASS material around 15% delta ferrite with various dose ranges (<0.08 dpa, 1–3 dpa, and >5 dpa)
- Once that need is identified, this activity would identify what SSCs might be the best candidates for harvesting
  - For example, perhaps lower support columns would be identified as the ideal SSC to address the CASS data need
- As decommissioning plants announce their plans, there is a clear list of SSCs and their characteristics (metallurgy, temperature, fluence, etc.) that would be desired to address the data need

# Coordination with EPRI and DOE

- NRC has memorandums of understanding with EPRI LTO and DOE LWRS covering exchange of information related to SLR and welcomes the involvement of other stakeholders.



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# Stakeholder Engagement



- IAEA CRP: Evaluation of Structures and Components Material Properties Utilizing Actual Aged Materials Removed from Decommissioned Reactors for Safe LTO.
- Conduct public workshops to further refine the concept of useful database of research objectives for ex-plant materials
- NRC welcomes collaboration under current EPRI/LTO and DOE/LWRS MOUs.

# Acknowledgements



- Robert Tregoning, RES/DE
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# Acronyms

- ARRM – advanced radiation resistant materials
- CGR- crack growth rate
- CRP – coordinated research project (IAEA)
- CSN – Spanish regulator
- EMDA- expanded materials degradation assessment
- ENRESA – Spanish decommissioning authority
- FT – fracture toughness
- GALL – Generic Aging Lessons Learned
- IAD – irradiation-assisted degradation
- IGALL – international GALL
- LTO – long-term sustainability
- LWRS – LWR Sustainability
- MOU – Memorandum of Understanding
- NAM – neutron absorbing material
- NIST – National Institute of Standards & Technology
- NPAR – nuclear plant aging research
- PMDA – Proactive Materials Degradation Assessment
- PTS – pressurized thermal shock
- RPV – reactor pressure vessel
- SFP- spent fuel pool
- SLR – subsequent license renewal
- SLRGDs – subsequent license renewal guidance documents
- SRP-LR standard review plan for license renewal